NOVEMBER, 1921

THE MINING CONGRESS JOURNAL

VOLUME 7 NUMBER 11

Harding and Hoover Ask Mining Congress' Aid



"REALIZING the unfortunate estate into which the mining industry has come, along with so many others, in the period of depression following the war, I regard as especially important the effort of your Congress to bring about an early improvement."

—WARREN G. HARDING

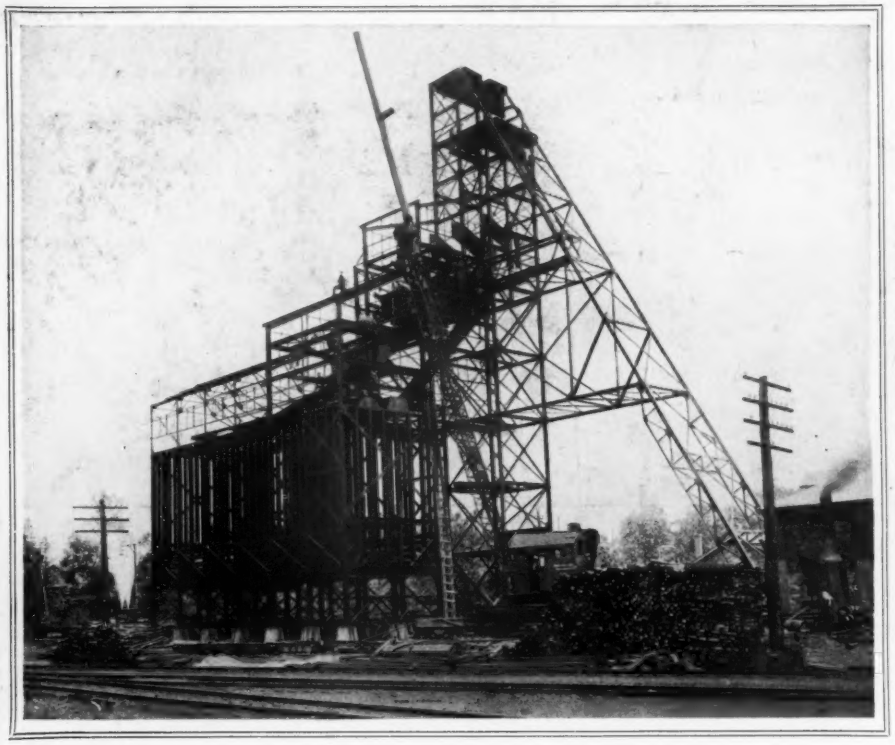
"FOR all these reasons it is the keen desire of the Department that it should be brought into closest relationship for co-operation with the industry, and it seeks the appointment of a committee from your Congress which will co-operate with the Department."

—HERBERT HOOVER



Full text of the messages of President Harding and Secretary Hoover to the American Mining Congress will be found on pages 469 and 470

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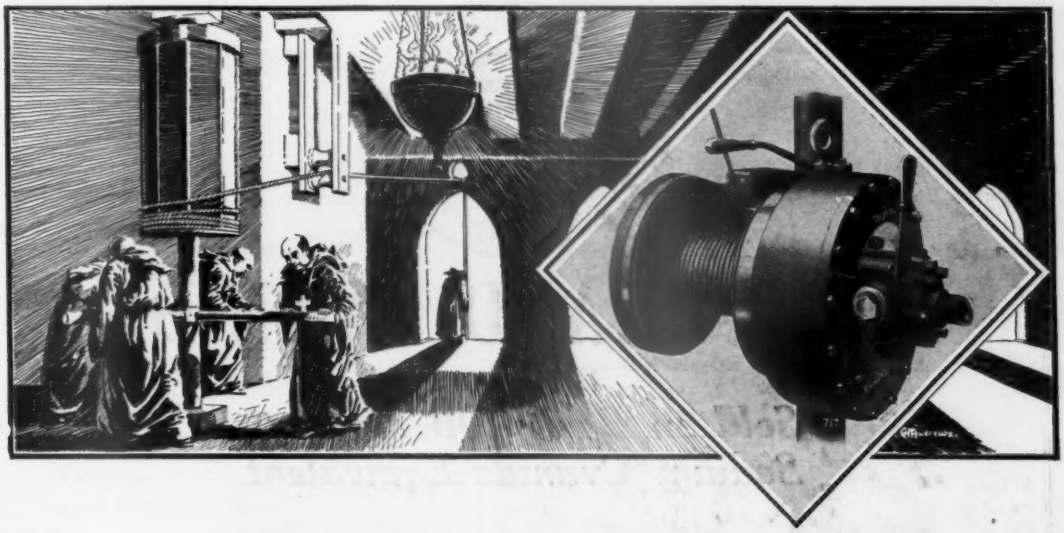
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THE MINING CONGRESS JOURNAL

NOVEMBER CONTENTS 1921

Illustrations

Page

President Harding ..... Cover
Secretary Hoover ..... Cover
E. C. Porter 465
The Annual Banquet 474
President W. J. Loring 477
Views of National Exposition of Mines—
481, 482, 484, 485, 486, 487, 488, 490, 492
Mining Laboratory, University of Washington 514

Editorials

Heroes 459
Muzzle the Pessimists 459
The Railroad Problem 460
Points of Contact With Mr. Peabody 460
The Check-Off 461
Foreign Trade 461
Points of Difference With Mr. Peabody 462
American Valuation 462
State Taxation of Mines 463
Tariff, When? 463

The Convention

Convention Attendance and Interest Break All Records .. 464
Coal Mining Problems Discussed By Leading Operators . 468
President Harding Requests Aid of Mining Congress 469
Futility of Government Regulation Shown by Peabody .. 469
Secretary Hoover Seeks Co-operation of Mining Congress 470
Taylor Advocates Holding Unions Responsible For Their Acts 470
Ludlow Favors Liquidation of Labor Situation 471
Export Coal Problems 472
Recommendations of Chairman of Export Coal Committee 473
Schwab Discusses Coal Business and Government Regulation 475
Page
Annual Address of President W. J. Loring 477
National Mine Tax Conference 479
National Exposition of Mines 481
Electrification in Development of the Mining Industries 499
Need of Independent American Organic Chemical Industry 499
Senator Nicholson Explains Need of a Department of Mines 500
Second National Standardization Conference 501
Address of Col. Warren R. Roberts 502
Resolutions Adopted 504

News and Features

New Mexico Chapter Elects 499
Impounded Oil Funds Decision 499
Foreign Exchange Discussed by Mining Congress Economist 507
No Cloture On Coal—By George H. Cushing 508
Coal Wage Arbitration Sought 509
Senatorial Presentation of Facts Urges Relief For Gold Mining Industry 510
A Bug's-Eye View of Washington—By Ira L. Smith ... 512
World's Coal Production Shows Reaction to Feverish Demand 513
Coal Conservation in Mining Urged 513
Economies Promised To Coal Industry by New Mining Laboratory 514
Census Bureau Statistical Report On Mining Industries 516
Bureau of Mines Investigations 517
Oil and Gas Regulations in Revised Compilation 517
Mine Timber Preservation 517
Gold and Silver Production Drop 517
Research Work in Smelter Operations 518
Utah Chapter 522
NATIONAL LEGISLATION 519
TRANSPORTATION 523

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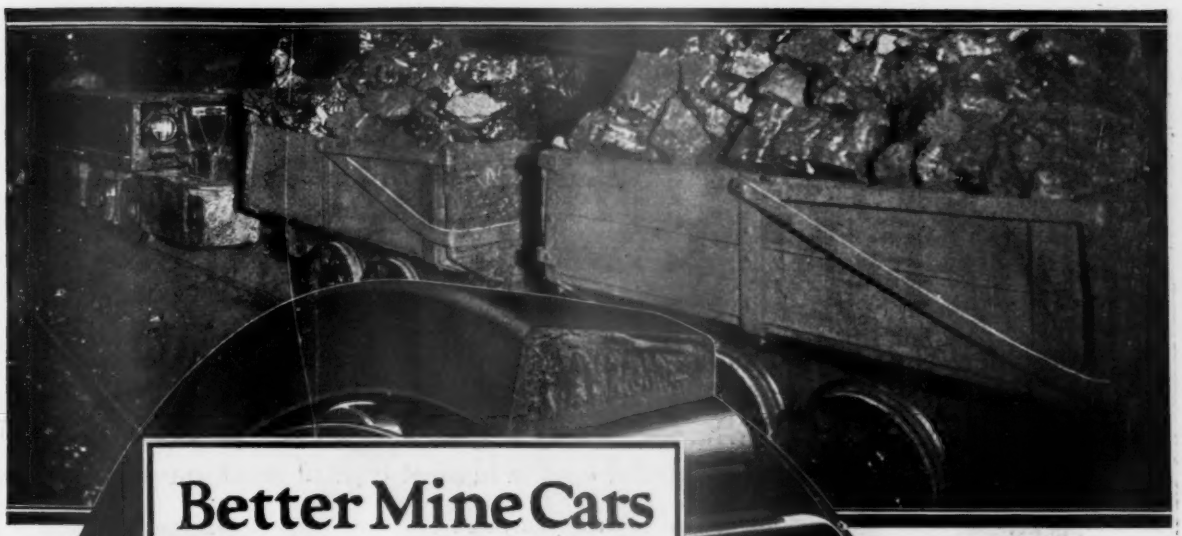
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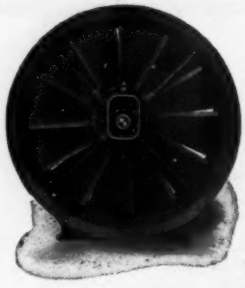
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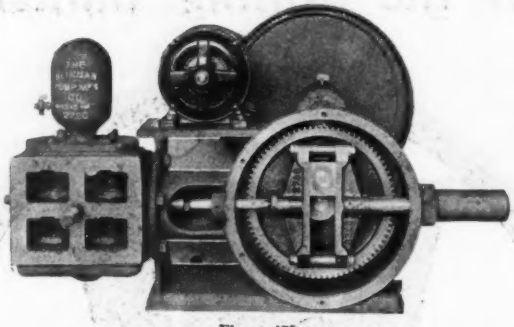


Figure 475

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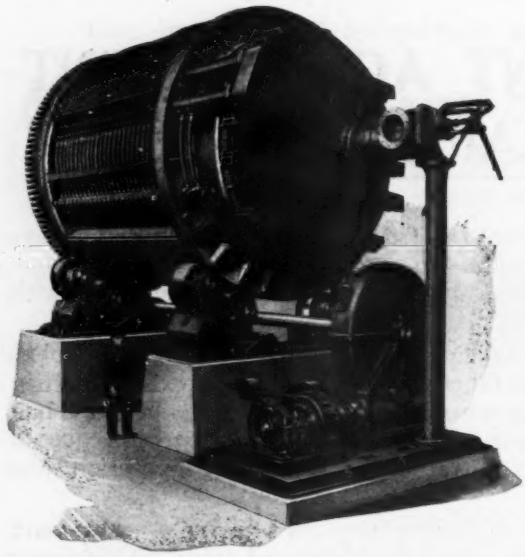
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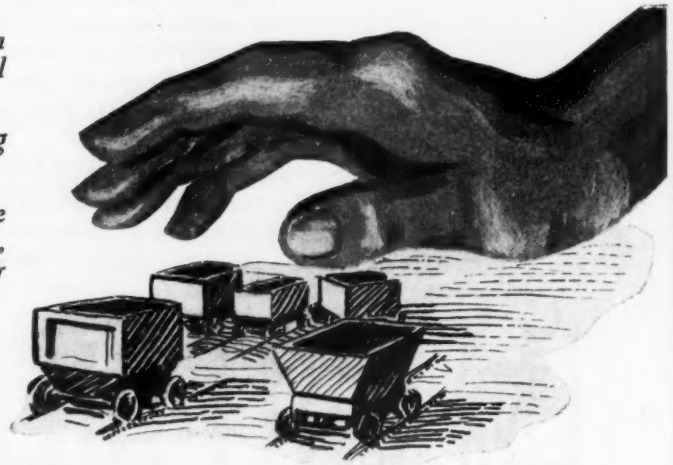
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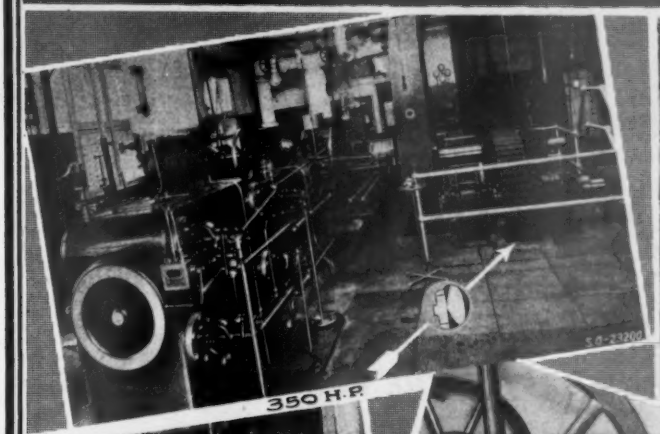
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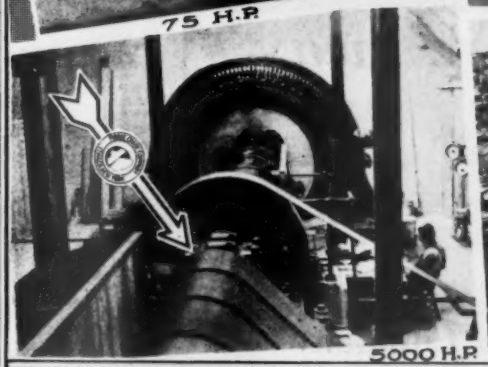


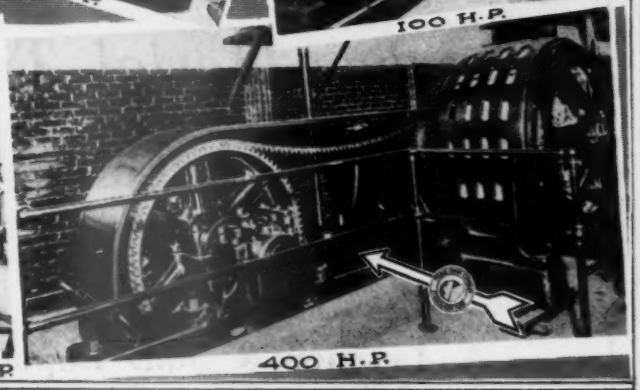












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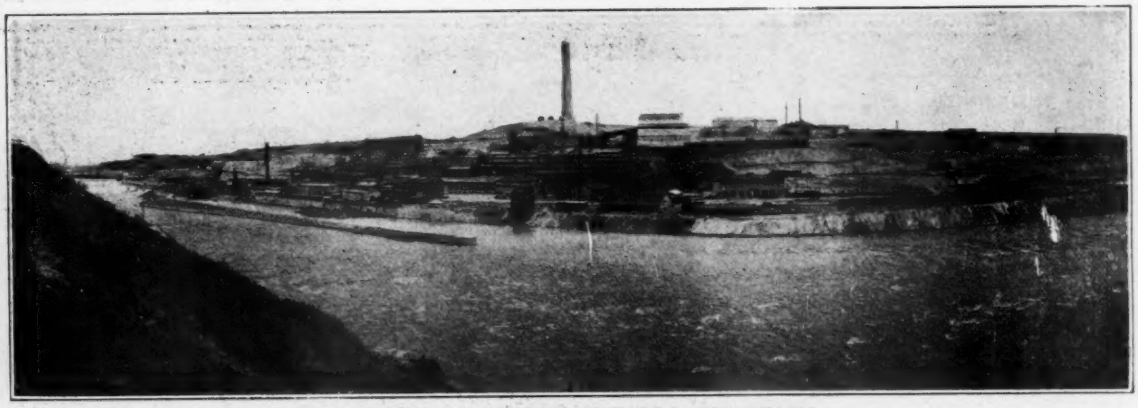
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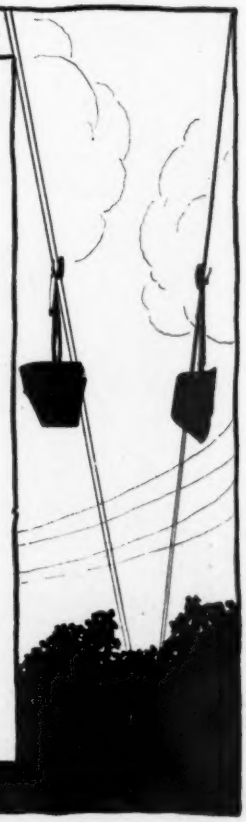
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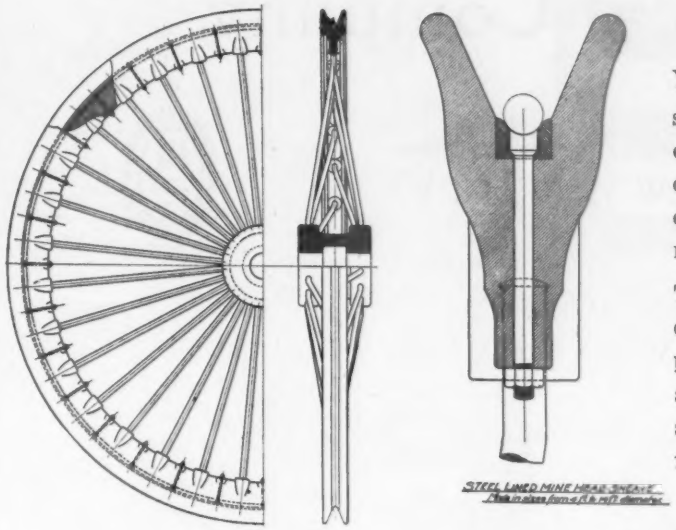
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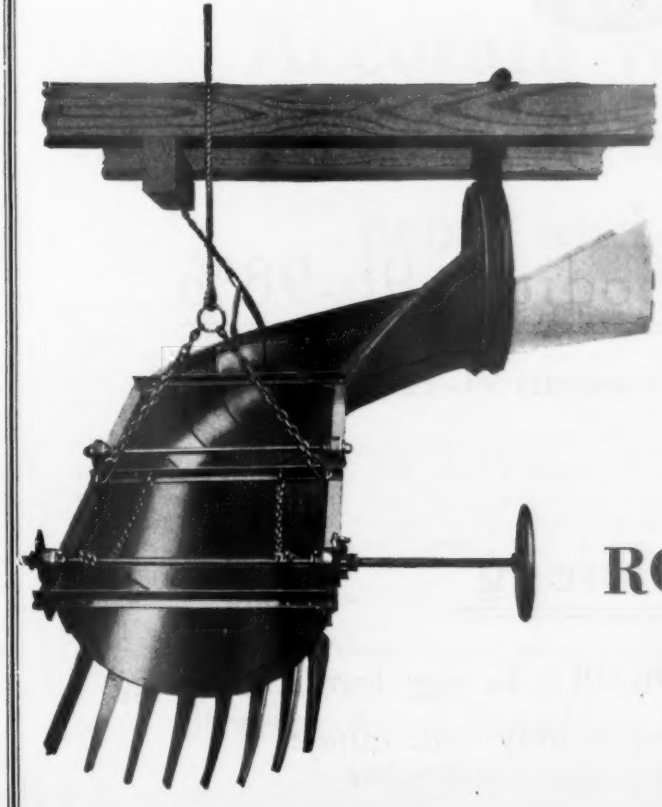
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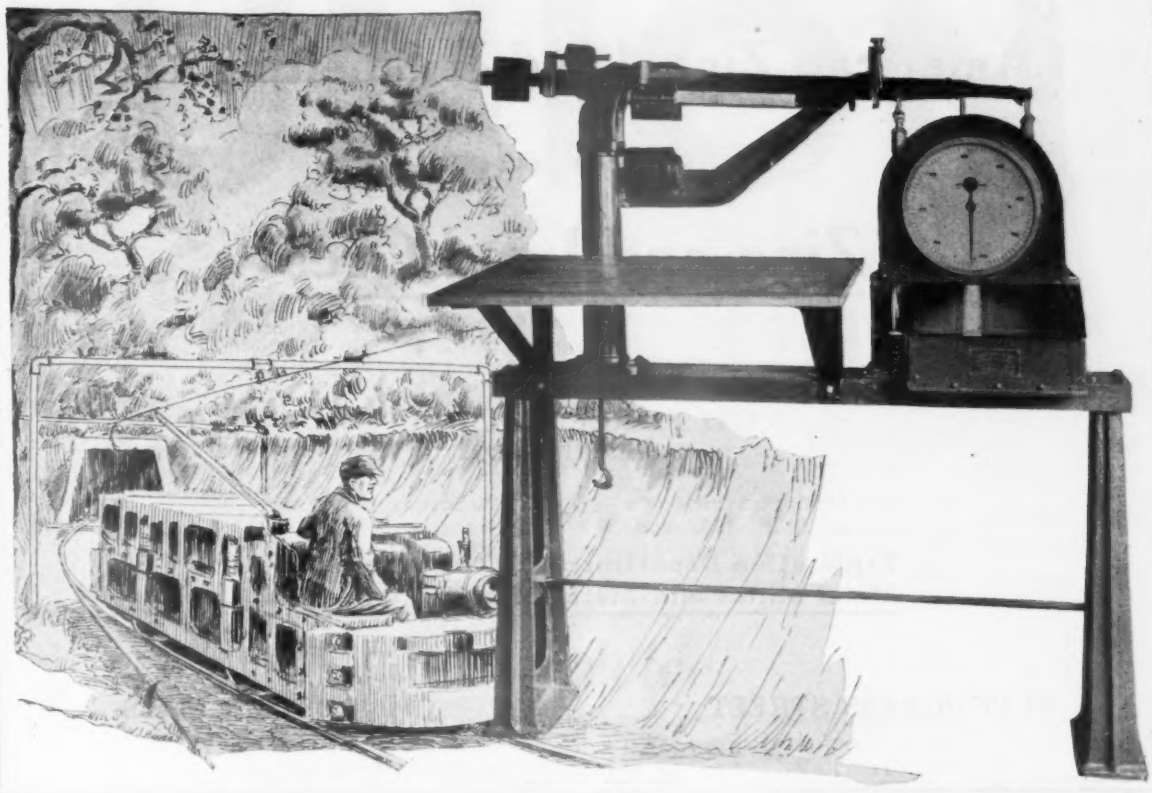
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With platform scales of proper length, cars need not be stopped, but can be accurately weighed while moving at a speed of three to four miles per hour.
Where weighing is done in hopper or weigh-pan the recorder can take care of the loads as fast as cars are brought up.

Send for catalogues and data on representative installations

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Metal Mines and Metal Mining Companies

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Highest Grade and Purity

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Pioneers

The Union Sulphur Company are the pioneers of the sulphur industry of America and today, after nearly 20 years of constantly increasing business, are still the leaders.

Purity

The sulphur produced by this company runs well over the 99½% purity guaranteed. Tests show that Union Sulphur has maintained a purity that is unsurpassed and, when you contract for Union Sulphur, you are sure of obtaining more than their guarantee.

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The better to serve our customers, a fleet of vessels used solely to transport sulphur to numerous ports for distribution is owned and operated by this company bringing to you the highest grade brimstone at the lowest possible cost.

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Ample reserve stocks are always carried so that no matter how large your order it can be shipped without delay. Warehouses in convenient centers are provided with generous supplies to take care of emergencies.

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Whether you manufacture paper, pulp, fertilizer, sulphuric acid, rubber, or any other commodity requiring sulphur of the highest grade, best results will be assurred if you contract for or specify Union Sulphur.

SULPHUR

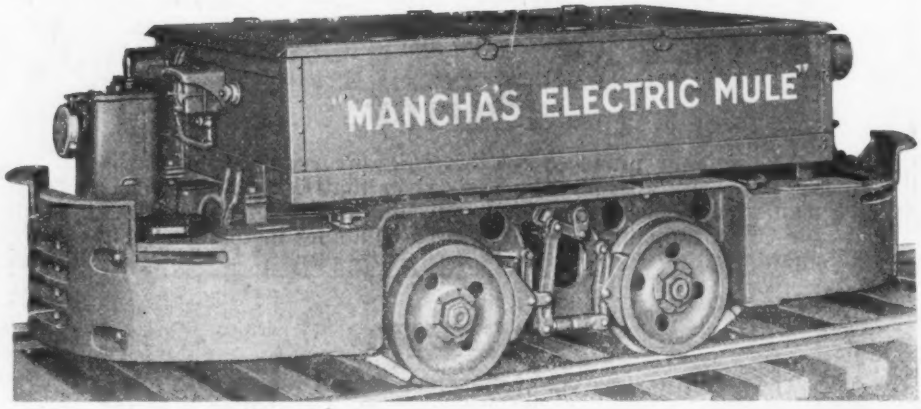
The Union Sulphur Company

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New York

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An Old Pass Word



WILL YOU CONTINUE

to fuss around with mules and the attendant inconvenience, mess, and worry when there are other means available which are more efficient, more reliable, more satisfactory, and above all, less expensive?

Those Who Saw MANCHA'S MULES at the MINING CONGRESS are CONVINCED

MANCHA'S ELECTRIC MULES

Lead all others in efficiency as has been proved repeatedly by actual test.

We do not claim to have a cure-all, but we do know that Mancha engineers have solved many knotty problems to the entire satisfaction of our customers and are always ready to grapple with your particular problem and to suggest a workable solution.

They will gladly answer all questions regarding the "Mancha Mule" as well as batteries and charging equipment and will honestly advise you whether or not a storage battery locomotive can handle your haulage requirements efficiently and economically. A great variety of sizes and types are available to suit the many conditions.
Write our nearest representative for his recommendations.

MANCHA STORAGE BATTERY LOCOMOTIVE CO.

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REPRESENTATIVES: Mine and Mill Supply Co., Scranton, Pa.; The Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.; Northwestern Engineering & Sales Co., Seattle, Wash.; Trent Engineering Co., San Francisco, Cal.; The Salt Lake Hardware Co., Salt Lake City, Utah.

The increasing necessity for maximum efficiency in all mining operations requires that every available method for improvement be applied



Dipper-trip panel, hoist panel, and crowd or swing panel used in control of the 300-ton electric shovel shown above.

Four-unit motor generator set consisting of a synchronous motor, exciter, and three direct current generators.

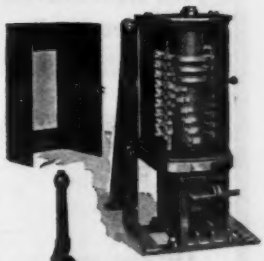
Bigger bites at less cost with the electric shovel

THE electric shovel has become an immense factor in mining and excavating. Coal veins too close to the surface for safe shafting, yet too deep for old-method open-cut mining are being stripped electrically with very profitable results. Open-cut limestone quarrying, once sluggish, now can keep pace with milling and loading. Bulk loading and big-scale digging can be done nearly twice as fast and at about half the old cost.

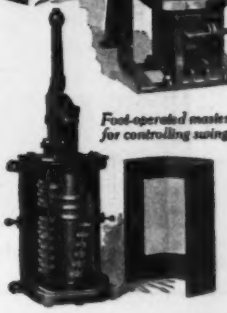
The 300-ton electric shovel, illustrated above, operates with greater power economy and fewer men—and cuts deeper over a wider radius than any predecessor.

All the electric equipment except the crowd motor on the boom, is located in the 50 x 22 foot cab. This equipment consists of one four-unit motor generator set with direct-connected exciter, two hoist motors geared to a common shaft, one swing, one crowd, and one dipper trip motor.

G-E engineers, experienced in design and manufacture of electric equipment for shovels, offer capable co-operation to manufacturers. Ask the nearest G-E office for further information.



Foot-operated master switch for controlling swing motor.



Hand-operated master switch for controlling the crowd or hoist motor.

General Electric Company

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Sales Offices in all large cities

43B-595

"Dreadnaught" Mine Cars (Pat.)

Did You Ever Dream of a Car as Good as This?



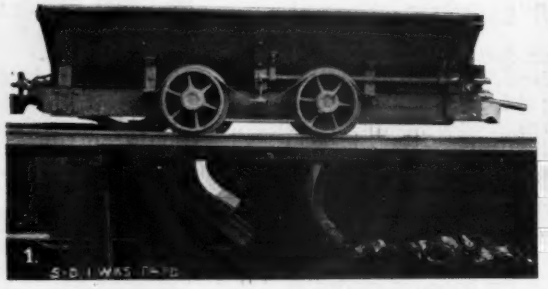
Mr. Sanford Day

A Car—4" to 8" lower for the same capacity in coal.
A Car—which will carry heaping pig iron without dropping.
A Car—with this great strength yet flexible enough to stay on the track.
A Car—of low center of gravity and endless endurance.
A Car—with cast steel ends and spring draw head push and pull.
A Car—that you can back into the mines full speed.
A Car—you will brag about all the rest of your life.

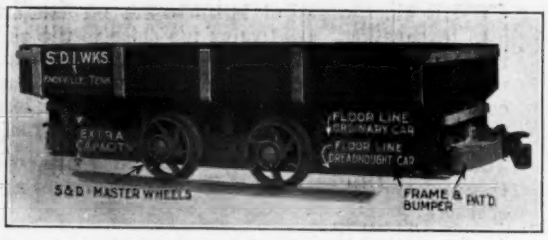
FOR NEW MINES we recommend our "Dreadnaught" Automatic Drop—bottom style—as the most perfect mine car in the world. Dumps 25 to 30 per minute without uncoupling or stopping.

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FOR ALL MINES we equip our "Dreadnaught" cars with our famous Whitney wonder or S. & D. Master roller bearing trucks with our latest greasing wrinkle.



The S. & D. Griffith Drop Bottom Car as the doors automatically close

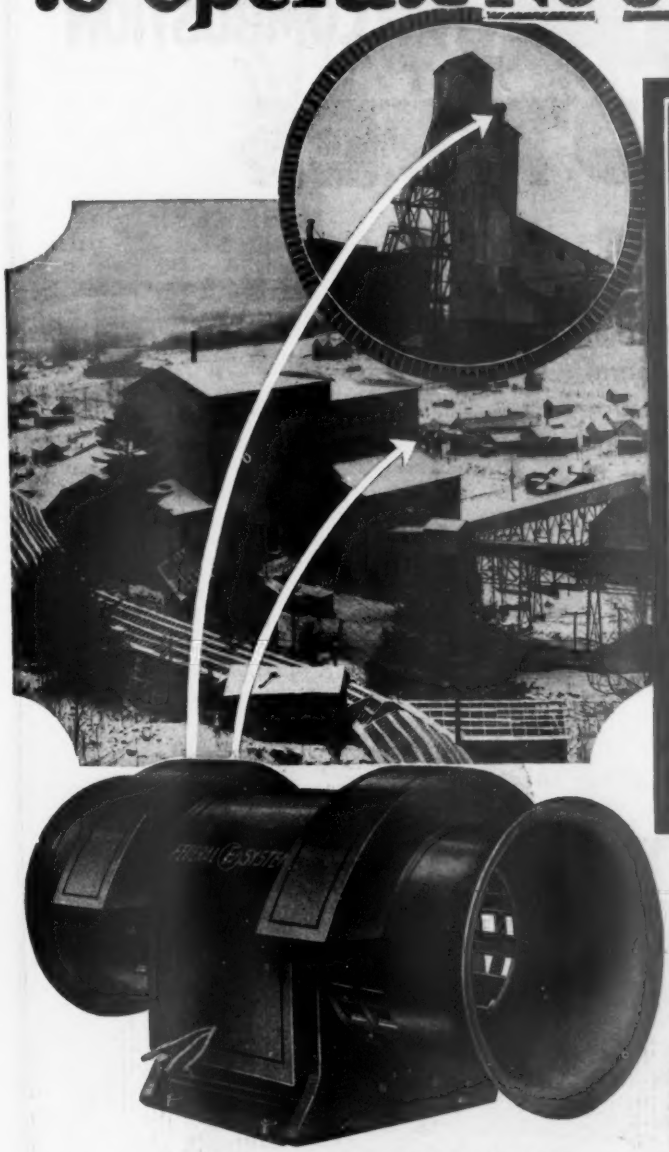


The "Dreadnaught" car for Rotary Dump. The floor line is the bottom of the steel side sills.

Anybody who wants to increase the capacity of their mine car, or who is opening a new mine would be exceedingly wise to write

Sanford-Day Iron Works, Knoxville, Tenn.

Averages only ½ cent a day to operate No other expense



The Peabody Coal Company of Kincaid, Ill., and the Dexcar Mining Company of Ashville, Pa., installed the Federal Electric Siren, as have hundreds of other mining companies, because they realized that it is the one real work regulator for miners.

Its weird cry penetrates for miles around—the men always hear it, whether asleep or awake. And they get to work on time. Always ready for instant use, at the touch of a button—buttons may be located at different places throughout the property for convenience.

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We will send you a Federal Electric Siren on thirty days' free trial. Send coupon for full information. No obligation.

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or Whistle

Approved by the Underwriters Laboratory of the National Board of Fire Underwriters.—Guide 380-12. Approval dated Oct. 11, 1918.

Federal Electric Company,
Representing Federal Sign System (Elec.)
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Please send full information and prices on a Federal Electric Siren for our town. Explain your *THIRTY-DAY FREE TRIAL PLAN.* No obligation.

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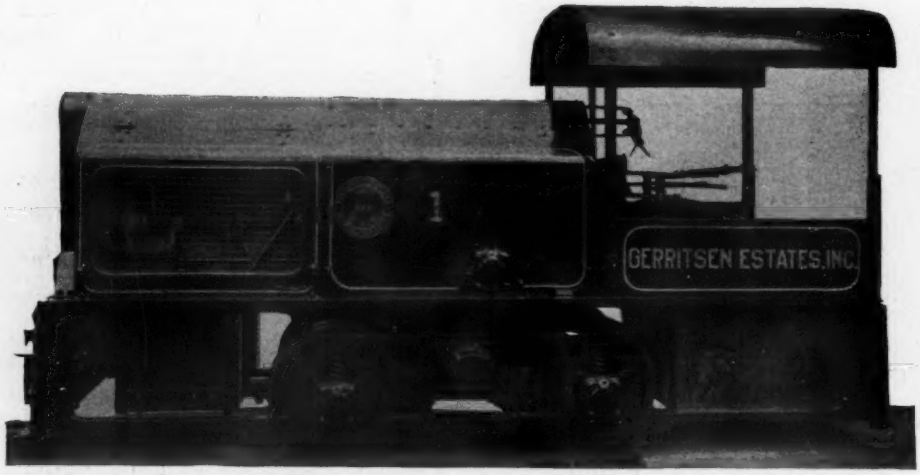
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MCJ-11

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This new Vulcan Locomotive meets the growing demand for internal combustion locomotives. In general design it is built like a modern automobile modified to meet the conditions peculiar to hauling loaded trains on tracks.

Send us your address for Catalog No. 30, describing these new locomotives in detail.



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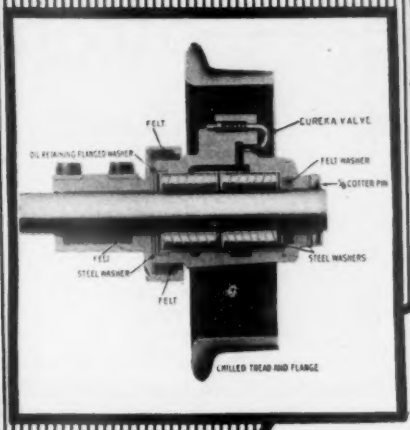
SLUICES, RIFFLES, PIPE LINES, GIANTS

Our factory, located at tidewater at Yonkers, N. Y., is most favorably located for export shipments by water as well as for domestic shipments via New York Central lines, and is within easy access of the raw materials markets. Our manufacturing facilities, coupled with our experience in placer fields the world over, enables us to render a service that is a guarantee of satisfaction

WRITE FOR THE CATALOGS

Office 2 Rector St. New York **NEW YORK ENGINEERING COMPANY** Works Yonkers, N. Y.

Hockensmith Wheels and Mine Cars



The Eureka Roller Bearing Wheel

The EUREKA roller bearing wheel is fitted with HYATT bearings. Where the service is severe and the load heavy two bearings are used, as shown in the illustration above. Otherwise, a single bearing is sufficient This refers to wheels above 15" in diameter. Under this diameter single bearings are invariably used.

A roller bearing wheel to give the best results must be part of a truck which permits the free rotation of the axles and gives a rigid wheel base. Failure to secure these results offsets any economies which otherwise would be secured through the use of roller bearing equipment.

Our single bar truck is designed to secure these conditions. THE TRUCK FOR SEVERE SERVICE, can be used with plain bearing wheels as well.

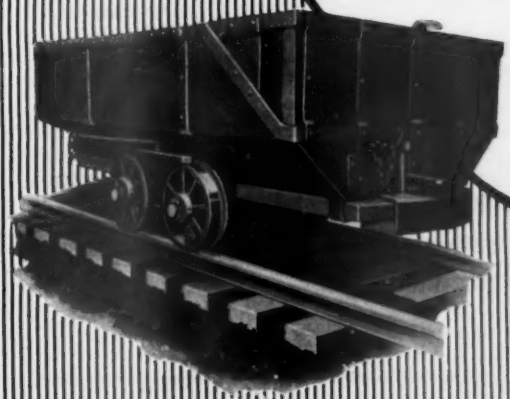
All our mine car wheels are made of charcoal iron mixture and are thoroughly annealed after casting.

The Eureka Plain Bearing Wheel

This wheel, shown below, is of the exposed linch pin type which, in addition to the ease of removal of both wheels and axles, permits inspection for loose or defective linch pins. By use of axle washers, wear can be taken care of and the wheel gauge quickly adjusted.

The oiling valve has a full-babbitted seat which insures a close fit to the oiling hole through the tension of a spring, which rests in a pocket cast on the outside of the oil chamber. The object of this valve is ***not*** to retain the lubricant, but to prevent the entrance of sand, water and other foreign matter, as well as to provide a clean hole through which the lubricant can enter. This is a feature which is lacking in all internal spring oilers. Two open ports provide passage from the oil chamber to the axles.

Over a million EUREKA plain bearing wheels now in use.



Capacity,
700 wheels per day.

40 years' experience.



Hockensmith Wheel & Mine Car Company

Penn Station, Pa. (Pittsburgh District)

Huntington Supply & Equip. Co.
Huntington, W.Va.

Webster & Company
Knoxville, Tenn.

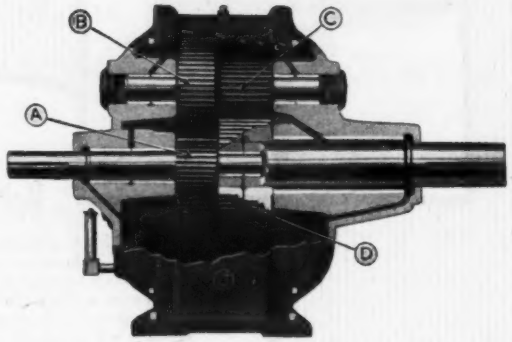
Compact——Simple——Strong

—the Jones Spur Gear Speed Reducer

Although it occupies very little installation space, the Jones Speed Reducer accomplishes reductions up to 200 to 1, and over.

It is especially adapted for use between electric motors and slow speed driven units, such as mine elevator and conveyor headshafts, agitators, screens, etc.

Its mechanical correctness is demonstrated in the illustration, showing a section through the oiltight housing. Three countershafts (one shown at the top) are evenly spaced about the drive and driven shafts, so that transverse loads due to tooth thrust are exactly balanced.



The pinion (A), on the high speed shaft, meshes with and drives 3 gears (B), which are mounted integral with 3 pinions (C). These mesh with and drive the slow speed gear (D).

Note—No overhanging shafts.

W. A. Jones Foundry & Machine Co.

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LITCHFIELD FOUNDRY & MACHINE CO.

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Established 1857 *Incorporated*

Manufacturers of Hoisting, Tail Rope and Endless Rope Haulage Engines, Steel Lined and Plain Groove Hoisting and Power Transmission Sheaves, Fan Engines, Loose Slip Ring, Differential Haulage Drums, Cable Grips, Shaker Screen Eccentrics, Mining Equipment and Supplies.

LITCHFIELD FOUNDRY & MACHINE CO.

LITCHFIELD ILLINOIS



The above cut shows the Standard Myers-Whaley Machine which was on exhibit at the American Mining Congress Exposition Chicago, Illinois, October 17-22, 1921

The operator demonstrated the flexibility of the machine and the ease with which the shovel was swung from side to side and the machine propelled. A good opportunity was afforded to observe the very interesting Whaley shovel motion. It is the most effective and efficient automatic shoveling device that has ever been designed.

Myers-Whaley machines have been in use for 10 or 12 years in many different classes of work, including Coal, Iron Ore, Lead Ore, Copper Ore, Rock Salt, Limestone, Gypsum, Shale, Tunnel Mucking, etc. The machine which was on exhibit embodies the latest improvements made by the Myers-Whaley Company. Its demonstration showed the extent to which the Myers-Whaley Company has *Standardized* its machines. Every part of this machine is interchangeable with parts of other Myers-Whaley machines of the same size. It illustrates the type of construction which years of experience have taught to be essential in machines to meet the exacting and heavy duty of loading rock, ores, coal, etc., into mine cars.

If information is desired regarding the use of our machines in your operation, please mention your conditions when writing for catalog and treatise, also data pertaining to similar operations.

MYERS-WHALEY COMPANY

KNOXVILLE, TENN.

AGENTS

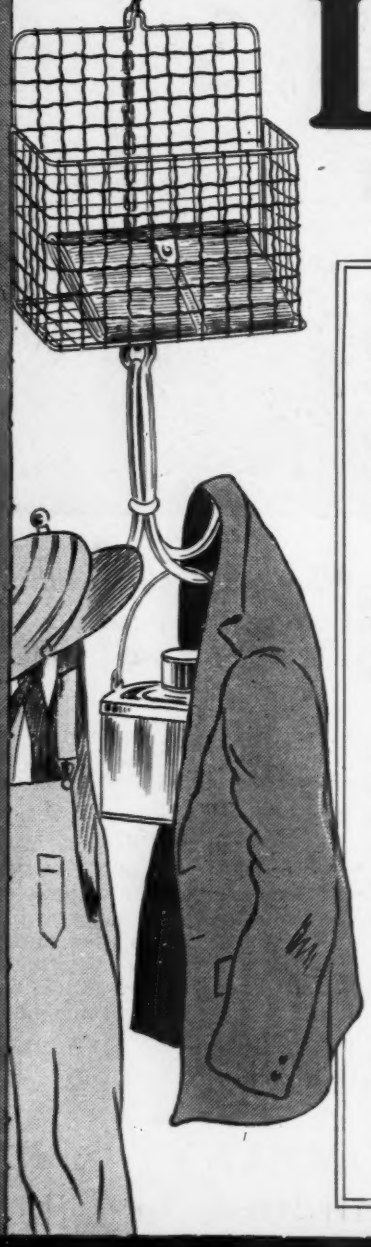
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HANG 'EM

at the ceiling—

LOCK 'EM

at the floor!



That is how Union Sanitary Clothes Hangers keep workmen's clothes dry, well ventilated, secure from theft.

First cost is far less than for steel lockers. Space used, one-third. Fire risk is eliminated. Repairs, negligible.

IMITATION

is sincerest flattery. Naturally, Union Sanitary Clothes Hangers have imitators. Don't be fooled. Anybody can imitate. We originated. And nobody equals James H. Channon Quality.

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By all means get a sample of anything offered in substitution. Then, point by point, compare with Union.

Compare the baskets. Union basket is deep—holds what's put in it.

Compare the hooks. Union hook won't bend.

Compare the chains. Union chain is tested to 1,000 pounds.

Compare pulleys, cleats and padlocks. Every Union part stands roughest usage.

Send for booklet "High and Dry" It tells the story.

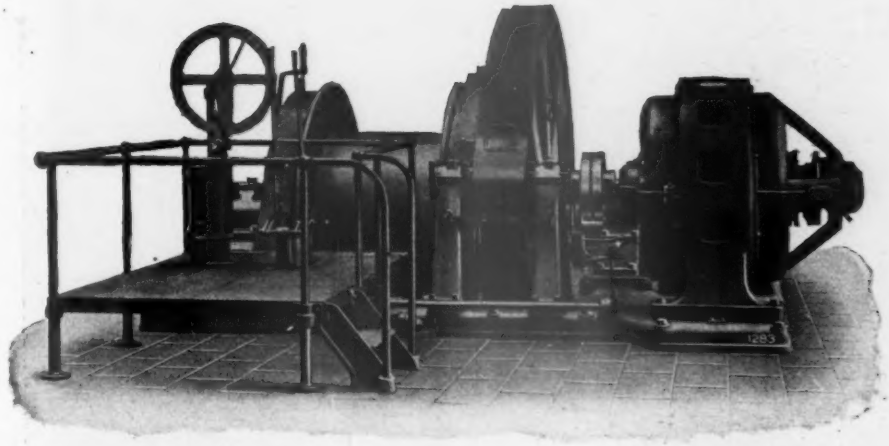


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223-233 WEST ERIE STREET.

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LIDGERWOOD MINE HOISTS



Steam up to 1000 H.P. **Electric in any Size**

Continuous operation of the mine depends upon the hoist. It is the duty performed by the hoist that determines its value to you.

Our engineers will gladly cooperate with you and decide what size and type of hoist is best needed to suit your requirements.

Our 49 years' experience building mine hoists has given us equipment in men and machines which enables us to build hoists that, in their design and perfection of material and workmanship, meet every requirement of mine service.

Built with STRENGTH and SPEED

They give

SAFETY --- CAPACITY --- ECONOMY

In operation

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COALITE

PACKED IN WHITE PAPER CARTRIDGES



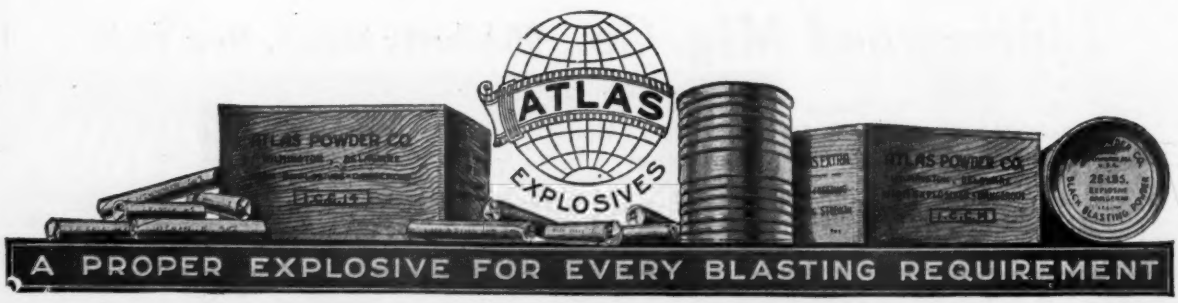
The new line of Atlas Coalite, which is now made in a sufficient number of grades to meet every blasting requirement, includes a grade that is stronger, quicker, weaker or slower than any other permissibles on the market.

All requirements were fully recognized and this new series of Coalites covers every condition met in coal mining.

The Atlas Service Man will show you how these new Coalites offer opportunities for getting BETTER work with a saving in blasting costs. Write to our nearest office.

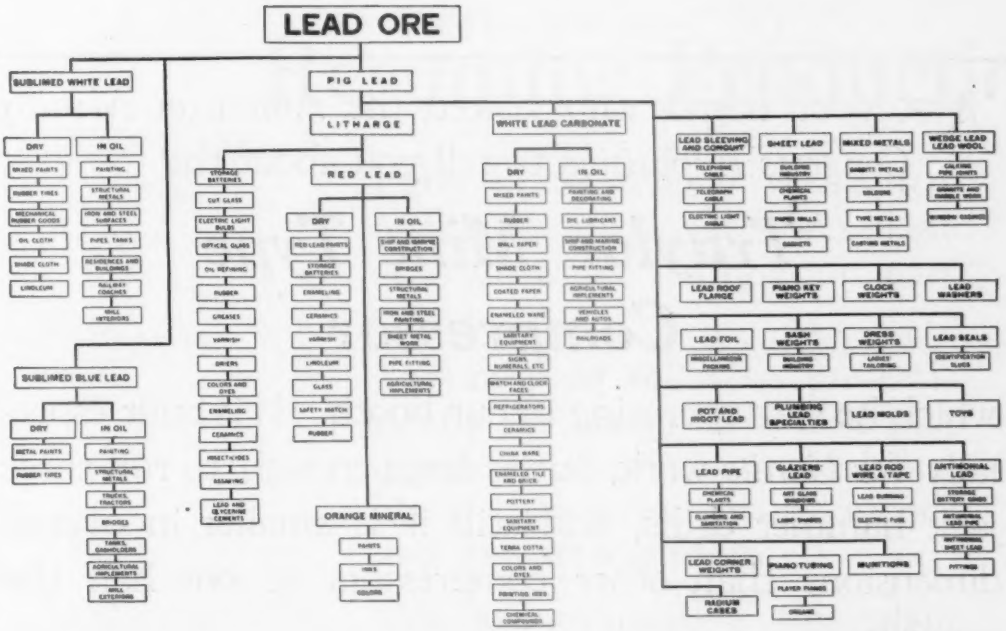
ATLAS POWDER COMPANY, WILMINGTON, DEL.

Branch Offices:—Allentown, Pa.; Birmingham, Ala.; Boston; Chicago; Des Moines, Ia.; Houghton, Mich.; Joplin, Mo.; Kansas City; Knoxville; McAlester, Okla.; Memphis; Nashville; New Orleans; New York; Philadelphia; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis; Wilkes-Barre.



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The use of this Company's products in every lead consuming industry has been realized through our working with the consuming industries and in our own laboratories and plants to bring to a high standard of perfection the production of special lead products for special purposes.

Eagle-Picher products adapted for use in the mining industry include Babbitt Metals for every purpose; Assay Litharge for assaying and cyaniding; Sublimed White Lead; Sublimed Blue Lead and Red Lead for painting iron and steel; and White Lead in Oil for the general painting of frame structures.

Catalog and desired data sent on request.

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CEMENT GUN COMPANY

INCORPORATED

ALLENTOWN, PENNSYLVANIA

ASK your friend who visited the *American Mining Congress Exposition* to tell you about the

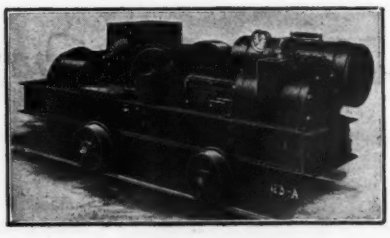
Traylor Mine Type Compressor

which he saw operating in our booth. It is built especially for *Gunite* work, but is large enough to run three jack hammer drills, and still it is smaller in overall dimensions than other compressors of one half the capacity.

Ask him, or us, to explain to you how the worm drive has resulted in a portable compressor so free from vibration as to eliminate any necessity for blocking or chocking.

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Gunite

Saves roof falls.

Fireproofs timbers.

Prevents dryrot.

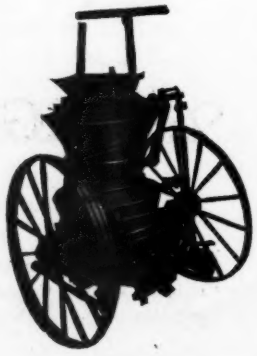
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Builds fireproof houses

Builds waterproof tanks and reservoirs.

Let us give you further information.



We Are Resuming Production

Early in September we started operating our Naval Stores plant at Brunswick, Georgia, on part time.

Yaryan pine oil is so pre-eminently the leader in its field that a serious shortage would bring about wide-spread inconvenience and loss among users.

We are re-opening this plant now, when it can only be operated at a loss, because we recognize an obligation to keep our customers supplied. In the long run, we believe this service will bring returns commensurate with the quality of our Naval Stores products.



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Naval Stores Division, Wilmington, Del.

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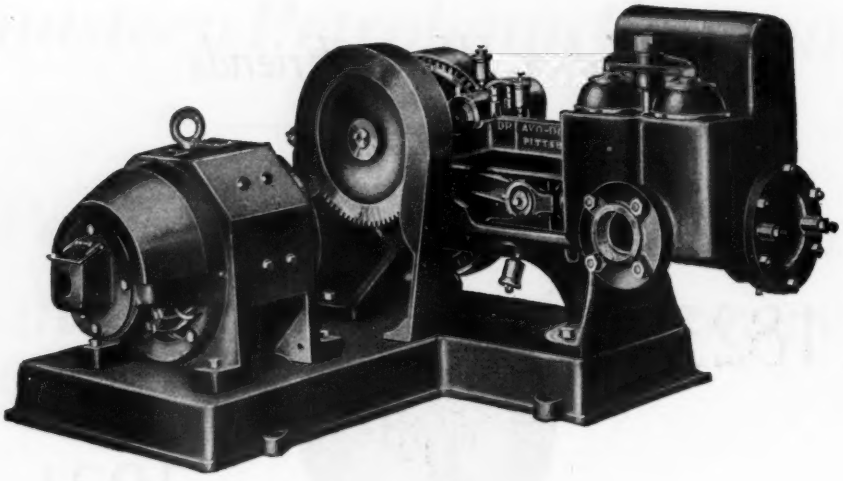
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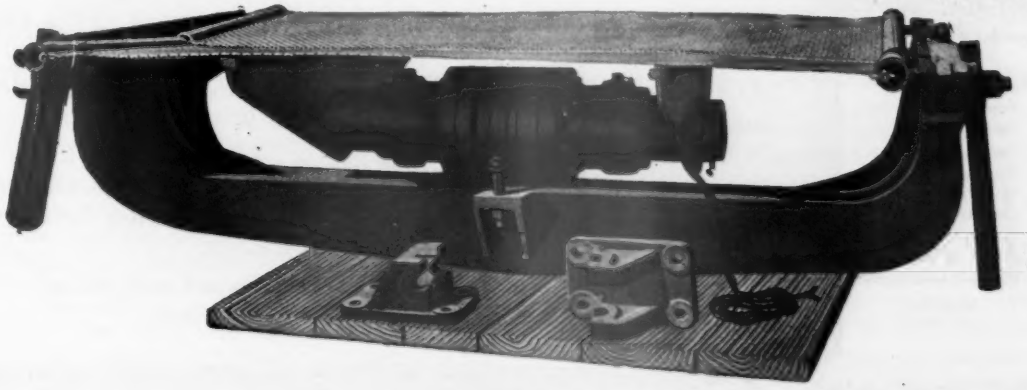
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HEROES

NOVEMBER 11 marks the end of the third year of peace. It is eminently fitting upon that day that this great nation should commemorate the death of its own unknown hero. On that day the reverence and gratitude of the entire nation will be expressed for the supreme sacrifice made in a cause so infinite.

On that day an international conference will be assembled here and dedicated to the proposition that the continued military and naval competition of nations is a provocation of war rather than an insurance of peace, and constitutes a burden of cost upon the people of the world which no longer can be borne. That our unknown heroes and those of every other nation may not have died in vain, let us consecrate ourselves to this proposition: the nations of the conference thus consecrated will in harmony agree upon a solution that for all time will free the people of the world from the ever-increasing burden of war, and thereby permit a resumption of the normal pursuits of peace upon which the progress of civilization depends.

But, with our tribute to the dead, let us also pay homage to those who faced death and might have died unknown on the same field of battle, to those who have returned to suffer a living death. How better may we consecrate the life of the hero unknown than to re-dedicate ourselves to the labor of love in assuaging the pain of these heroes and of repairing their losses? May the heart of the nation open wide its portals to those who are today bearing a sacrifice no less great than that of the unknown!

MUZZLE THE PESSIMISTS

OPTIMISM PREVAILS throughout the country. Business sees hope for revival. Labor is hopeful and confident. Capital sees investments safeguarded. Government sees improvement everywhere. These conditions are coming in spite of the influences which have been causing uncertainty and fear. The disrupting influences which have been responsible for much of the instability, dissatisfaction, and unrest are growing weaker and less dangerous.

For example, there's the politician who has stood in the way of constructive legislation which will stimulate business, revive industry, stabilize exchange, create employment, and encourage investment, when he knew that delay would depreciate almost every kind of property in the country and otherwise prolong the return to normalcy. Of all whose aims remain self-centered while the country is passing through this period of depression and retrenchment, politicians who exploit existing post-war conditions for political advantage, and office-holders—representatives of the people—who work for class legislation and local gain, and attempt to delay or defeat policies and measures which would benefit the entire country, merely because of political considerations, are the most contemptible. Such leaders should be defeated at the polls.

Then there's the class of unstable individuals, who have no money to invest or constructive ideas to offer, who make no contribution to the industrial wealth of the nation, but who spend their time agitating and creating factional disturbances; whose efforts are directed against private ownership and management in an attempt to establish government ownership and control of all public utilities and natural resource industries; and the effect of their efforts has been to discourage investment and to prevent the untrammelled development of these industries. Then there are certain labor groups whose purposes are clannish and whose efforts are devoted to their own selfish interests regardless of the effect which the accomplishment of their aims might have upon the country and the people as a whole. Their viewpoint is narrowed to the program of getting everything possible for themselves "while the getting is good" irrespective of the hardship, burden, or damage imposed upon others. All of these are rapidly becoming impotent, since the latent energy and aggressive spirit of determined and loyal American citizens have been aroused.

Optimism must be restored, and confidence must prevail instead of uncertainty and distrust, if the country is to be rehabilitated and business is to be given an impetus toward complete recovery and normal activity; and this end is being accomplished by the sincere efforts and constructive policies of men who are doing things in the business and industrial world and who represent the true ideals of America's thought and action.

THE RAILROAD PROBLEM

THE RAILROAD TIE-UP has been called off but the railroad problem has not been settled. The railroad problem will not be settled until operating costs have been reduced to approximately that level which is to be the future price average on all commodities, labor included.

Samuel Gompers says "the ultimate issues between the railroads and the employes remain to be settled." To this extent we believe he is right. He further stated, "the only true solution of the problem of the relationship between railroad employers and railroad workers lies in direct negotiations between the two groups. Negotiations and joint agreement minus the artificial machinery of government boards will bring railroad operation to a practical and natural basis."

In the latter statement we believe Mr. Gompers is partially right, but he appears to have left out of consideration the more important factor of the general public interest. The railroad question cannot be settled, will not be settled, until it shall be able to render a service to the great consuming public at a price commensurate with the earning power of that consuming public.

To say that only the railroads and their employes are interested and that these parties have a right to dispose of the public interest independently is in violation of the principle that transportation is charged with a public interest and that transportation companies are public utilities, which is the only principle upon which Interstate Commerce Commissions and railroad labor boards have any right to exist.

If this principle is acknowledged we must then assume that the railroad problem can only be settled upon a basis which will permit public business to go on at a price level commensurate with other lines of productive energy.

The future level of prices will be determined upon a basis having relation to the amount of gold which forms the basis of the credit of this nation and of the world. No other basis can be permanent.

If the United States could hold its present gold supply and if other nations of the world could secure a proportionately similar amount the world's business could go on upon a higher price level which would justify the present wages of railroad employes and the present transportation charges to the public. All economists agree that until credit conditions abroad can be improved the possibilities of foreign trade are limited. The productive power of the United States is considerably in excess of possible home consumption. To keep all the wheels of industry moving it is necessary to dispose of a percentage of our total production in foreign markets. The present depreciated exchange in foreign countries is prohibitive of exports and an open door for imports which will, to that extent, displace American labor.

The higher our price levels here, the lower the gold reserves of foreign countries, the greater the handicap of depreciated exchange rates, the more difficult it will be for American business to return to normal. The first step toward relief from this situation is to reduce costs of railroad operation and the transportation costs to the public which vitally affects the living cost of all.

Following a proper solution of this question the cost of producing coal must be radically reduced. In practically all other lines losses have been and are being taken. In these lines, transportation and coal, the power which prevents a return to normal conditions which is essential to the prosperity of the American people is organized labor. The future profits of capital must be less and the wages of railroad labor must come down to a common wage earning level which in the end will be governed by the nation's permanent gold supply. The first step in that process is that railroads shall reduce rates, which cannot be done except its labor shall reduce its wages. The resolution adopted by the Twenty-fourth Annual Convention of the American Mining Congress at Chicago is to be commended. It will be found upon another page of this issue of the MINING CONGRESS JOURNAL.

Let labor and railroad capital adjust their differences upon a basis which will permit business to assume normal conditions. No arbitrary solution based on the principle that the transportation-paying public is not the principal party in interest can be permanent.

POINTS OF CONTACT WITH MR. PEABODY

AMONG THE LEADERS in the coal industry few, if any, are listened to by the coal trade with more attention than Francis S. Peabody of Chicago. At the recent convention of the American Mining Congress in Chicago, Mr. Peabody gave a review of the causes leading up to the heatless days and lightless nights and pointed out most clearly that governmental interferences was entirely responsible for the coal famine, the runaway coal market and the misery and suffering which were thereby entailed. He fixed the blame quite definitely upon the then Secretary of War Baker and the then chairman of the Federal Trade Commission Colver, and in the following language called attention to another Cabinet member:

"How different has been the attitude of Herbert Hoover as a government official. Every man engaged in the industry of mining, whether metal or coal, is proud of Herbert Hoover—not only proud of his ability as a mining engineer, but proud of his clean, sound, constructive thinking of the problems that so beset the mining industry."

Mr. Peabody while regarding governmental control as the most serious problem, discussed some of the minor problems as follows:

"There are enough miners in the mining and coal mining industry of the United States if the mines were worked 250 days per annum, to produce twice the amount of coal that the United States, including its exports, could use. What a problem, and who can solve it?—How to support these men, in idleness half the time because they must earn during the period of their work sufficient to live during these idle days?

* * *

"During periods of great demand the non-union operators pay premiums to take away from the union mines the labor that is so necessary. During bad times, when there is no demand, these same non-union operators force a reduction in wages and produce coal so much cheaper than those paying union wages can produce coal that their mines run full, while the union mines run less than 30 percent. Can this problem be solved? I do not know. Certainly not by government control of the wages or prices at which coal is sold."

Mr. Peabody ended his address as follows:

"I believe a commission, as much as I abhor the name, and as much as I abhor the usual results of the findings of commissions, should be appointed by this Congress to study from the broadest standpoint, the saving and conservation of the mineral resources of the country and the saving and conservation of the lives of men employed in those industries; to make clear, concise recommendations for the passage of federal and state laws that will result in the saving for the future generations of the fuel of the country and saving for the present generations the lives of the men employed in the industry."

The American Mining Congress is fully alive to the problems so tersely pointed out by Mr. Peabody. Its first great effort was for the creation of a Bureau of Mines, its principal purpose being to bring about better safety methods in mining. As a result of that agitation and the

education of the public conscience the loss of life in coal mining operations has decreased from 6.78 men killed per million tons of coal produced in 1907 to 3.39 men killed per million tons of coal produced in 1920. The record is one in which the American Mining Congress feels great pride.

During all of those years this organization has urged that such conditions should be created in the coal industry as would make more uniform the operation of the mines, which would insure a steady and reasonable profit to the operators and which, by eliminating the waste to which Mr. Peabody calls attention, would provide to the consumer the cheapest coal which is possible with a fair rate of wages to the miner. It has continuously urged the vast importance of stabilizing the coal industry for the benefit of the most largely interested party—the consumer of coal. It has continuously held to the belief that cheap coal is the basis of our industrial prosperity and that practically every person in the United States, without regard to his calling, has a personal and direct interest in the proper functioning of the coal mining industry. To the extent of its financial ability it will gladly comply with Mr. Peabody's suggestion to create a committee to do further work looking to the stabilizing of the coal mining industry.

THE CHECK-OFF

WE BELIEVE that none of the leaders of the coal industry is in better standing with organized labor than Harry N. Taylor, vice-president of the Central Coal & Coke Company, Kansas City, Mo. Mr. Taylor is a broad-minded, sympathetic, public spirited citizen who always gives full consideration to the labor side of every industrial controversy. We believe that the rank and file of the membership of the United Mine Workers of America would choose him as an arbiter of an industrial dispute more universally than any other employer of mine labor in this country. Mr. Taylor's long experience as a coal operator and his unique standing with union men gives special weight to his views.

At the recent Chicago convention of the American Mining Congress Mr. Taylor reviewed the growth of the United Mine Workers' organization, pointing out the advantages and disadvantages, and giving particular attention to the question of the check-off. Mr. Taylor said "personally, I have the highest regard for union labor fairly conducted. I know from personal observation that it has accomplished much for the wage earner. In many instances it has brought him comfort and contentment that otherwise would not have been secured; but the miners' organization must be purged of the radical and revolutionary leadership that has sprung up in many districts before it can hope to regain its standing in public esteem."

Concerning the check-off Mr. Taylor spoke as follows:

"The abuse of the check-off system that is in vogue and a part of the organized labor contract is even more serious to public welfare than the radical, lawless leader, because it is by this means that he is able to accomplish his end. In my opinion, it is the check-off system which is responsible for the growth of radicalism in the miners' organizations. In the early days of the contract, the check-off was a comparatively harmless thing. It was used only to check off nominal dues and sick benefits. Today its purpose is abused until it is a menace to public welfare. It is used to check off a large percentage of the miners' wage and the vast sums obtained are used for purposes far removed from the purpose intended in the original contract. The huge sums realized from the check-off have been expended to carry on a lawless war condition in more than one of the non-union coal producing states. These funds have been diverted in another state and have been used for the defense of the I. W. W.'s under arrest for offenses against the laws of the nation. It was the vast sum created by the check-off which made conceivable the nation-wide strike of November, 1918, when the people were threatened with freezing in an effort on the part of the miners to enforce their demands.

"The check-off enslaves the rank and file of the miners' organization. The individual miner's earnings are taken from his pay envelope in the proportion levied upon him, and the funds are often used for radical propaganda in which he may not personally be interested, and to which he is frequently opposed.

"Although the contract distinctly provides that all the men shall remain at work while disputes are being adjusted, this clause in the contract is almost universally disregarded. The pendulum has swung back until now the strike is the weapon used almost as freely as it was prior to 1898 to enforce the settlement of disputes."

Mr. Taylor further called attention to the fact that the advances in wages paid to coal miners during the war pyramided the enormous sum of $1,695,831,160.40 and that the increased cost of coal under the contract added to the wage advance ordered by the President's commission in 1920 will add the enormous sum of $1,099,450,000.00 to the cost of coal for the year 1921, and will continue as a yearly charge so long as the present contract remains in force unadjusted.

* * *

"Although labor is approximately 85 percent of the cost of production, the miners have steadfastly refused to readjust the present contract, and have served notice that they do not intend to accept a reduction even at the expiration of the same, April 1, 1922, but will ask for a still further advance.

"Business must return to normalcy, but this cannot be done so long as a basic industry like coal remains on a war-time basis. The labor leaders must know their failure to readjust and meet present conditions has done more to prolong the depression and cause endless distress among working people than any other element."

Mr. Taylor closes his address with the following statement:

"If the miners continue their refusal to make a readjustment of an abnormal wage scale and on April 1st call a nation-wide strike, the operators must assume a public duty of standing for the public rights, and the well-thinking men of this country must stand behind them in this battle for the good of American industry and American freedom against a labor autocracy."

FOREIGN TRADE

WE ARE MET at every hand with the suggestion that the bankrupt nations of Europe cannot pay us their obligations unless they pay us in merchandise. This would be alarming if true. Fortunately it is not true.

Europe owns today enough bonds and similar obligations of South American countries, governmental and industrial, to more than pay the European indebtedness to the United States. Do not think for a moment that European countries contemplate offsetting their indebtedness to the United States in this manner. They want to continue to finance South America. They want to continue to hold South American trade. In this they are merely wise.

This country for many years has tried to get a foothold in South American trade and has conspicuously failed for two reasons. Our business methods are not leisurely and painstaking enough to adapt themselves to the business methods of South American countries. This is the psychological reason. The materialistic reason is that South America has been financed by Europe.

To have our own international bankers tell us in the face of this that the only way we can develop foreign trade is to permit free importation of European goods is a method of blinding the public to a situation with which the bankers themselves must be entirely familiar.

POINTS OF DIFFERENCE WITH MR. PEABODY

WE HAVE in another editorial called attention to those parts of Mr. Peabody's able address at the Chicago convention to which we agree, and now desire to call attention to a point of disagreement. Let us again quote Mr. Peabody:

"Let us study for a minute the Sherman law and the Clayton bill. Let us see what effect these laws have upon our industry. They forbid combinations in restraint of trade, meaning thereby that men in a similar line of industry cannot get together and agree upon prices, cannot get together and agree upon the quantity of their production. How does this affect our industry? I do not believe it affects it in the slightest. There are 7,000 coal operators scattered throughout the United States, from Virginia and Maryland to the state of Washington, mining coal under dissimilar conditions, not only as to physical problems of mining, but as to the quality and use of the coal produced—coal veins running from 24 inches to 50 feet in thickness, and with ash running from 2 percent up to 25 percent.

"It seems incredible that a condition could exist whereby these men could even think of getting together on prices or production. But let us assume that it would be possible. What would be the result? During periods of great demand, prices would go up; not because of any combination, but because the demand is greater than the supply. During periods of depression prices would go down, because the demand was less than the supply.

"To prove this, let me call attention to the provisions in the Clayton bill exempting farmers' organizations from the penalties of the bill, exempting labor organizations from the penalties of the bill—especially providing that labor is not a commodity, therefore no combination can be formed in restraint of trade. What is the result? Notwithstanding the farmer is allowed to combine, is allowed to hold back shipments of corn, etc., is allowed to combine on the price at which he shall sell his beef, or his corn, or his vegetables, or his grapes. Today corn is selling at 16 cents a bushel in Nebraska. Public utilities, villages and farmers are burning corn instead of coal. Do you think for one minute that if they could have made a combination that would hold, we would not be paying $1.00 or $1.50 a bushel for that same corn? But no matter how hard they try to combine they cannot get away from the inexorable law of supply and demand, and if there is more corn than can be used, the price must go down.

"Labor is the same. The unions are holding for $8.00, $9.00 and $10.00 a day for their men. With what result? Half of their men are out of work today. Everything from the beginning of the world has been based upon the inevitable laws of supply and demand; the human mind can devise no method by which these laws can be supplanted."

Mr. Peabody does not give the reasons for the many prosecutions for violation of the Sherman Anti-Trust law now occupying various federal courts of the country. It must be assumed that these prosecutions would not have been commenced except upon a more or less general belief that the law had been violated. Nor have we any estimate of business activities suppressed by the uncertainty caused by these prosecutions in the business mind of the nation.

It is true, as Mr. Peabody says, that the human mind can devise no method by which the laws of supply and demand can be supplanted, and it is equally true that it would be utterly impossible to bring into one combination the seven thousand competitive units now engaged in the production of coal. But we believe it to be also true that the lifting of that governmental interference with the law of supply and demand—the Sherman Anti-Trust law—to the extent that it prohibits combinations which would serve the public good, would serve to stabilize prices and production, conserve the coal reserves and provide better safety requirements and better living conditions for the men employed in mining. We believe it would also make possible a reasonable profit to the operator and more continuous employment to the miner and avoid some of the waste occasioned by the idleness of 700,000 men one-third of each year and the waste of the earning power of the two billion dollars of capital which is idle one-third of the year, both of which (the support of the men and the interest upon the capital) must be added to the cost of coal to the consumer. An interest charge of 4 percent and a daily wage of $5 amounts to a charge of 86 cents per ton upon 500 million tons of coal, which is the average annual production of the country. Money engaged in a hazardous enterprise cannot be secured at 4 percent interest; skilled miners cannot be hired for $5 per day.

Whether a combination in coal is possible or not, the fact remains that the Sherman law not only forbids such combination but court decisions at this time forbid even the assembling and distribution of statistical information of current facts concerning market conditions. In this behalf the American Mining Congress is in line with the thought of many other persons in the coal industry and ably voiced by another prominent leader of the coal industry, Mr. Thomas H. Watkins, in his remarkably comprehensive address delivered at the Chicago convention. Mr. Watkins says:

"In connection with the activities of Congress, it appears to me that the American Mining Congress should adopt a definite program leading up to a recommendation for either the repealing of, or amendment to, the Sherman Anti-Trust law, which would permit reasonable trade agreements that would tend to stabilize prices and production. The condition brought about by over-production and unbridled competition is as detrimental and vicious in its effects as the extremes of high prices in a panicky coal market. It has been well said that it is impossible to create a combination in the bituminous coal industry, but it is possible for the leaders of this industry, if permitted to get together, to formulate policies that would tend towards conservation of our coal resources, toward stability of production, towards wholesome treatment of labor, towards satisfactory treatment of the consumers, none of which can be done efficiently today owing to the prohibition under our laws of even discussing among ourselves agreements as to production or prices."

AMERICAN VALUATION

A RESOLUTION favoring the principle of American valuation as a necessary protection for the industries to which the mining industry delivers its products was passed at the recent convention of the American Mining Congress.

This resolution is a logical endorsement of a necessary change. False propaganda would have us believe that American valuation means a pyramiding of values when the fact is that the present foreign valuation for import purposes is a fictitious valuation, low in most cases. Under the present system valuation for import purposes has no relation to the invoice price. The invoice is inviolate as between buyer and seller. The valuation is a "declared" or stated value for the purpose of fixing duty. On a recent purchase of clothes from London the invoice was received and paid. When the clothing arrived it was accompanied by a statement for duty due. The declared price on the basis of which duty was fixed was many dollars below the invoice price. This is the condition which will be remedied by American valuation.

STATE TAXATION OF MINES

STATE taxation of mines proved to be a topic of vital interest to the delegates to the national Mine Tax Conference held October 17–22, in conjunction with the twenty-fourth annual convention of the American Mining Congress. Many phases of the question were developed. Careful analysis of various state tax laws showed that in their enactment and administration, the legislatures and tax commissions of the different states have not followed uniform, scientific, or economic principles. In some states a differentiation is made between productive and non-productive mines and mineral lands; in others, mines, including undeveloped properties, are subject to an ad valorem tax based on the value of their mineral content, and in addition are required to pay a tax on production; in others, a production or severance tax is levied in lieu of the general property and other taxes, while in many only the ad valorem basis is used. Certain states have adopted such a discriminatory policy with respect to natural resources that these assets are being greatly diminished and in many cases totally destroyed by excessive valuations and exorbitant tax rates.

The development of the mineral resources of the country has brought vast amounts of capital into the mining states, has added thousands of people to their populations, has caused the building of railroads and thus has opened up vast agricultural regions and other potential resources, has furnished sources of employment for millions of citizens, and has enabled permanent improvements to be made which have added materially to the taxable wealth of the country.

Any state which levies a tax which retards or precludes the development and full utilization of the country's natural resources is not only defeating the principle of conservation but is causing a waste of its assets and potential taxable wealth from which a future constant revenue might be derived.

TARIFF, WHEN?

IN THE REFLECTION of editorials which the country gets from New York papers there is an impression that the political leaders in Congress feel they have a red-hot stove in their hands in the Fordney tariff bill and would like to set it down some place until it has time to cool off. This attitude is the conscious and unconscious reflection of the thought of the international bankers who are so intent on furthering foreign trade relations, even at the expense of internal prosperity, that their propaganda sometimes misleads the public in the relative importance of a four billion dollar foreign trade balance and a sixty-five billion dollar home market.

The Fordney tariff bill recognizes the necessity for protecting American mineral industries, and its passage will mean prosperity for these industries, both through their protection and through the resumption of activity in other protected industries to which the mining industry furnishes its products.

The tariff bill involves detailed consideration of intricate business problems and as rapidly as this can be completed with intelligent investigation the tariff issues will be settled and the tariff bill passed.

The political leaders are not afraid of the tariff issue. The majority of them are seasoned legislators who have passed tariff bills before and they know that a measure which spells internal prosperity will have few long-time enemies.

PERSHING PRAISES STEEL MAN'S PATRIOTIC SERVICES

THE part played by steel in the recent war was, of course, recognized and appreciated all along, but the public has never been made fully aware of the work done by certain individuals in making possible the use of the nation's resources. One of the big business men instrumental in winning the war was James B. Bonner, and the mining industry will be interested in the following acknowledgment of his services which was printed in the *Army and Navy Register* of October 22:

"Not all of those civilians who served with distinction and usefulness in an administrative or advisory capacity during the World War received decorations and citations and it is only in the nature of things that some of those most deserving of special commendation failed of recognition. Of such is Mr. James B. Bonner, one of the prominent 'steel men' of the country for many years, who served during the war as chairman of the committee on steel distribution of the American Iron and Steel Institute, in which capacity he successfully conducted the agencies which facilitated negotiations between the government departments that required the material and the firms that manufactured steel and iron. At that time the congestion of orders was prodigious, entirely beyond the ordinary functions of departmental administration to regulate and control and impossible of unaided adjustment at the sources of supply. It therefore became necessary to allot the material so as to obtain the maximum benefit of domestic facilities of production with the least delay. The difficulties of the task were enormous and too little has been known of the achievement, outside of the scenes of this important war activity. Some comprehension of the volume of business may be gained from the fact that the amount of material thus turned out and delivered to the various government branches requiring it equalled about 17,000,000 tons. Recently General Pershing, learning of this situation and the part which Mr. Bonner played in the proceeding and also ascertaining that no citation, such as had been freely bestowed in many other directions, had been issued in recognition of this important service, sent a copy of his report to Mr. Bonner with this inscription: *'To Mr. James B. Bonner, whose patriotic service as a representative in Washington of the steel and iron industries of our country deserves the praise of all his countrymen. John J. Pershing.'*"

COPPER STOCK ASSIMILATION

CONTINUATION of present rates of copper production and consumption in the United States will result in a surplus at the end of the year of about 650,000,000 pounds, which is only 250,000,000 pounds above the quantity ordinarily in the course of refinement. This prediction has been based by close students of the situation upon reports of the Geological Survey giving amount of stocks on January 1 and September 1. Stocks at the first of the year were given as 659 million pounds, and the unrefined metal at the smelters as 465 millions, totaling 1,124,000,000 pounds. The Survey estimated that this figure was reduced by September to 810 million pounds. Sales for September were estimated at 100 million pounds, and production at 40 millions.

CONVENTION ATTENDANCE AND INTEREST BREAK ALL RECORDS

TWENTY-FIVE HUNDRED mining operators, foremen, superintendents, scientists, public officials and manufacturers of mining machinery and supplies attended the Twenty-fourth Annual Convention of the American Mining Congress and National Exposition of Mines, at the Coliseum and the Congress Hotel, Chicago, Oct. 17-22.



The convention was not only the largest, but the most representative the mining industry of America ever held. The National Exposition of Mines was in all respects successful and will probably be held annually hereafter. A majority of the exhibitors held a meeting in Chicago and voted unanimously to exhibit next year irrespective of the city in which the exposition may be held.

The solidarity of the mining industry was demonstrated throughout the week, and marked recognition of this solidarity was shown by President Harding and Secretary of Commerce Hoover, each of whom requested the entire industry, through the Mining Congress, to lend its aid in settling the problems of one particular branch of the industry. Similar recognition was extended by some of the leading coal operators, who told the convention that they knew they would be understood by the metal miners and that they desired to work in co-operation with them.

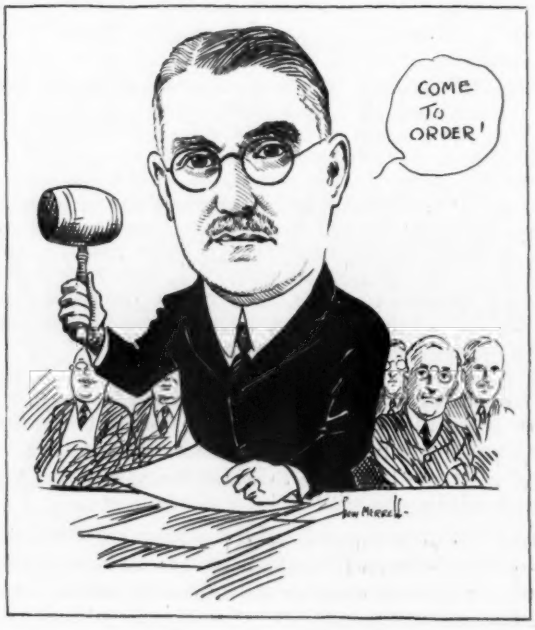
Convention speakers included "big men" from the Western metal mining districts, the iron region, the oil fields and the coal industry. Metal mining in all its phases—including economics, freight rates, labor problems, exchange—was a theme which ran throughout the program. In addition, there were special sessions devoted entirely to metal mining, as well as coal.

W. J. Loring, under whose leadership the American Mining Congress has had its most successful year, was re-elected president unanimously. J. F. Callbreath was re-elected secretary. Daniel B. Wentz, first vice president, E. L. Doheny, second vice president, and Thomas T. Brewster, third vice president, were re-elected unanimously. Bulkeley Wells of Denver and E. L. Doheny of Los Angeles were re-elected directors for three years, and Sidney J. Jennings, of the U. S. Smelting and Refining Company, and H. W. Seaman, of the Trojan gold mining company, were elected directors for three years, succeeding Harry L. Day of Wallace, Idaho, and E. P. Mathewson of New York. The Executive Committee for the coming year will be composed of President Loring, Sidney J. Jennings and Robert Linton.

Of particular interest to the Western metal mining industry was the action taken by the Mining Congress in the adoption of resolutions. The resolutions, each dealing with some particular subject, expressed the opinion and in some cases forecasted the action of the Mining Congress. The substance of some of the most important resolutions follows:

Summary of Resolutions.

Commending the activities of Senator Tasker L. Oddie in support of the gold standard and favoring a conference of the United States, France and Great Britain to devise means for remedying the chaotic exchange situation; resolution introduced by President Loring favoring a Department of Mines; opposing immediate general revision of the metal mining laws and favoring appointment of a committee to ascertain the wishes of the mining industry; authorizing the appointment of a committee to study state mining laws; authorizing the Tax Division to prepare and present information tending to prevent discrimination and inequitable taxation; favoring reorganization of the government of Alaska and making its administration local and responsible to the President; favoring a program of a sound business education to the end that capital and labor may understand one another and business be restored; urging government authorities to order abolition of the last freight rate increase and the last wage increase; urging speedy passage of the Fordney tariff bill; favoring American valuation; asking additional war minerals relief legislation; urging the government to complete at once



investigations necessary to development of the irrigation and power potentialities of the Colorado River; appointing the President and the Secretary of the American Mining Congress ef-officio members of a committee hereafter to be appointed to confer with the Department of Commerce, at Secretary Hoover's request, for promotion of the mining industry; favoring amendment of the Sherman Anti-Trust Law so as to permit mining companies to exchange necessary information.

TUESDAY

At the opening session, Tuesday morning, Oct. 18, H. C. Adams, Illinois vice president of the American Mining Congress, presided as temporary chairman, and the large Coliseum Annex was crowded when he presented President W. J. Loring. At this session President Loring delivered his annual address. Chairman Francis S. Peabody of the Illinois Committee on Arrangements spoke on "The Problems of the Mining Industry" and Edwin Ludlow, president of the American Institute of Mining and Metallurgical Engineers, spoke on "Coal and Labor." The secretary read the letter from President Harding asking the assistance of the Mining Congress in solving coal problems, and the States announced their members on the Resolutions Committee.

At the second convention session, held Tuesday night, Governor J. A. O. Preus of Minnesota spoke on "Government and Industry," describing in detail the workings of the Nonpartizan League. Falcon Joslin of Seattle spoke on "The Needs of Alaska."

WEDNESDAY

President C. H. Markham of the Illinois Central Railroad delivered an address on "The Problems of the Railroads." George Otis Smith, director of the United States Geological Survey, spoke on "Some Items In a Prosperity Program." A. G. McGregor, consulting engineer, spoke on "A Plea for Sound Economic Propaganda." E. L. Greever of Tazewell, W. Va., spoke on "The Present Industrial Situation in the West Virginia Coal Fields."

Sidney J. Jennings, of the United States Smelting, Mining and Refining Company, spoke at the afternoon session on "Some Methods for Increasing the Use of Silver."

Thomas D'Arcy Brophy, of the Anaconda Copper Company, spoke on "Copper, a Metal of Commerce." He discussed the uses to which copper was put before the war, and the excessive demand for the metal during the period of hostilities. But, he concluded: "During this period of constantly increasing production, the copper industry has not even protected the markets upon which it formerly relied. The war emergency is over, copper production is more than equal to the demand, and now is the time for a great effort within the copper industry itself to recover for copper, brass and bronze their rightful places in domestic markets which during the war were usurped by inferior substitutes."

The concluding paper of the afternoon was read by Capt. Henry George, of the Chase Metal Works, Waterbury, Conn., on "Commercial Future of Copper, Brass and Bronze."

"Although the legitimate field of copper and brass has been encroached upon," Capt. George said, "it is not due to the intrinsic superiority of other metals, but rather to the fact that copper and brass have been left to depend on their established merits whereas the newer competitors rely chiefly on a lower first-cost. Brass, copper and bronze have as wide a field as ever before, and it is the object of this paper to arouse public attention to a condition which if not rectified will result in a national economic loss. To combat the flooding of the market by cheap and unsuitable substitutes the copper and brass producers and fabricators should unite with the engineers in a campaign of public education to check this growing evil. It is not my intention to cast discredit on any particular metal. All have their spheres of usefulness, but it is the duty of the technician to insist that none are diverted to undertakings for which they are clearly unsuitable from the viewpoint of ultimate economy after a prolonged service.

"The commercial future of copper, brass and bronze is assured. It is confidently asserted that both engineers and consumers will return to the policy of using only such materials that show by endurance a maximum return on the investment and will no longer be beguiled by the fetish of a lower first-cost."



E. C. PORTER
Convention Manager, American Mining Congress

THURSDAY

Addresses were delivered at the morning session by T. H. Watkins, president of the Pennsylvania Coal & Coke Company, on "The Coal Industry and the Public." H. N. Taylor, vice president of the Central Coal & Coke Company, Kansas City, Mo., on "Labor Unions and the Mine Operator;" W. H. Williams, senior vice president of the Hudson Coal and Coke Company, Scranton, Penn., on "Mine Management;" H. C. James, of the Western Petroleum Refiners' Association, on "American Oil Resources," and Senator Samuel D. Nicholson of Colorado on, "A Federal Department of Mines."

H. G. James of the Western Petroleum Refiners' Association spoke during the afternoon on "American Oil Resources." It was his opinion that no one need worry about a future oil supply, as undiscovered fields and oil shale would take care of the largest possible demand.

P. N. Penna, secretary of the Indiana Bituminous Coal Operators' Association, spoke on "The Legal Responsibility of Labor Unions." Mr. Wanamaker, electrical an-



gineer of the Rock Island Lines, followed with an address on "Electric Welding."

The Thursday night session was devoted to the subject of Standardization and presided over by Col. Warren R. Roberts. H. C. Morris, chief of the fuel division of the Bureau of Foreign and Domestic Commerce, read a message from Secretary Herbert Hoover asking the appointment of a committee to co-operate with the Department of Commerce, and was followed by C. E. Lesher, managing editor of Coal Age, who spoke upon "The Mining Industry's View of Standardization," and Col. George S. Gibbs, of the General Staff, U. S. War Department, on Standardization as a Factor in National Defense."

Friday

Luis N. Rubalcaba, Assistant Secretary of Industry and Commerce of the Republic of Mexico, spoke Friday morning on "Opportunities for American Organizations in Mexico." "What has an American corporation to do," he asked; and then answered, "Just go to Mexico and find the same protection as any other corporation in the country. Just go there and find out the conditions. I am telling you all these face-to-face and heart-to-heart. Just go there and find out really what the conditions of the country are and you will realize that you will find no other country in the world where you can make money more easily than you can do it in Mexico."

E. M. Herr, president of the Westinghouse Electric & Manufacturing Company, spoke on "The Importance of Developing American Interests Abroad." America, he said, cannot hope to make the progress her pre-eminent industrial facilities, natural resources and financial strength warrant unless we take our proper position as a leader in exploiting trade with other nations. We must seek foreign trade even when business at home is good, and must send abroad representatives who will stay permanently. The government must establish a well organized commercial department of the diplomatic service, and as a creditor nation we must arrange to extend large loans to legitimate foreign enterprises and to purchase their securities.

"It must be constantly borne in mind," he concluded, "that the foreigner must sell as well as buy and that foreign trade is of necessity reciprocal. Under present conditions the foreign buyer is in great need of credit and provision for extending it is now of prime importance.

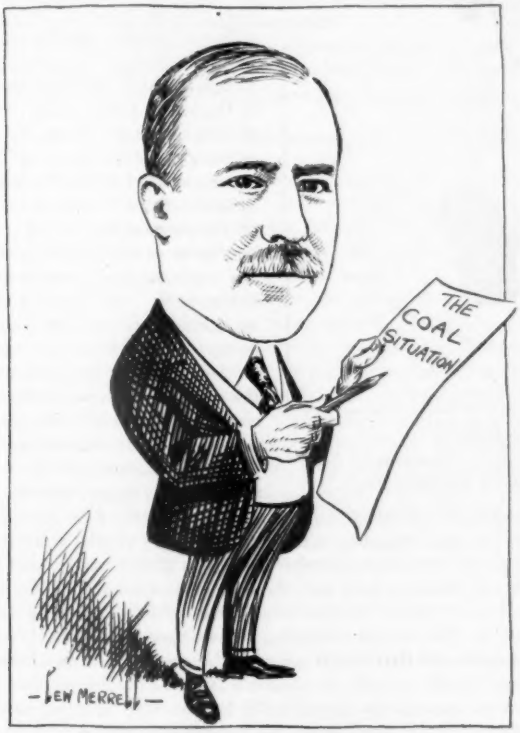
"Let us recognize that never in the world's history has there been a nation with a future so bright as the United States. Our natural resources are unequalled; our industries better equipped and organized than those of any

other nation and we have suddenly become the greatest creditor nation in the world. Before the war we were obliged to pay to our European creditors an interest charge of about $500,000,000 per annum. Today they owe us interest in about the same amount. We will, therefore, receive, when the European nations are in shape to pay interest, about $500,000,000 annually in goods from them. Some manufacturers are alarmed at this and overlook the fact that increased imports do not necessarily mean decreased exports. Let us rather be mindful of our obligations as business men of this great resourceful nation, and, putting our shoulders to the wheel of export trade, move forward with the determination to establish the United States in this great commercial field on an even broader basis than did our forebears in old England a century ago."

C. K. Leith, who had attended the preceding day's session, was unable to remain and read his address on "The Essentials of an American Foreign Mineral Policy," but his manuscript was presented and will be incorporated in the printed proceedings.

C. A. Owen, president of the Imperial Coal Company, spoke on "Competitive Costs and the Marketing of Mine Products in Europe." Dr. Henry Mace Payne, New York, spoke on "The Possibilities for the Development of a Permanent Export Market for American Coal."

Dr. H. Foster Bain, director of the U. S. Bureau of Mines, spoke during the afternoon on "Mining Opportunities in the Far East." George S. Rice, chief mining engineer of the United States Bureau of Mines, spoke on "Methods Used in Europe in the Control of Coal Mines and the Distribution of Their Products." William J. Hale, of the Dow Chemical Company, Detroit, Mich., spoke on "Protecting American Industry," and Eugene H. Wolff, president of the American Zinc Institute, delivered an address on "The New and Extended Uses of Zinc Products."



FRANCIS S. PEABODY

Chairman of the Board of the Peabody Coal Company and Chairman of the Illinois Committee on Arrangements for the Twenty-fourth Annual Convention of the American Mining Congress and the National Exposition of Mines

At the annual banquet, held Friday night, the toastmaster was Finley P. Mount, president of the Advance Rumely Company. The speakers were Edgar F. Smith, president of the American Chemical Society, on "Chemistry," and Charles M. Schwab, of the Bethlehem Steel Company, on "The Problems of Industry."



The Saturday morning and concluding session was given over to the consideration of resolutions.

COAL GRADING AND STORAGE ARE OBJECTS OF CO-OPERATIVE INVESTIGATIONS

AIMING AT INCREASED efficiency in the coal industry generally and the export trade in particular, the Bureau of Foreign and Domestic Commerce and the Bureau of Mines have entered into a co-operative agreement, preliminary plans for which have already been laid.

Investigations intended to lead to adoption of a coal classification and grading system will form the major portion of activities under the new program, with close attention also being paid to studies relating to the feasibility of coal storage.

The work will be under the supervision of F. R. Wadleigh, newly appointed head of the Coal Section of the Fuel Division in the Bureau of Foreign and Domestic Commerce. Mr. Wadleigh was formerly associated with the Tuttle Coal Corporation, of New York, and the Weston Dodson Co. He is recognized throughout the trade as an authority on coal, more especially in regard to the export phases of the industry.

The Pittsburgh station of the Bureau of Mines will be the central operating point for the investigational program.

Special and general interest of the coal industry will be attached to the work which will be carried on in connection with the problem of coal storage.

COAL MINING PROBLEMS DISCUSSED BY LEADING OPERATORS

"IT IS FITTING that the Coal Section of the American Mining Congress should take an active part in its deliberations," said Thomas H. Watkins, president of the Pennsylvania Coal and Coke Company, in an address before the convention Thursday morning, October 20. "All mining men have many interests in common and many problems that it is our duty to the public and ourselves to assist in solving."

"The Coal Industry and the Public" was the subject of Mr. Watkins' address. The real serious problems in connection with the coal innustry, Mr. Watkins held, those problems affecting the public as well as the operators, while developing during many years before the war became more acute as a result of the war policies of the national administration and broke out beyond control within a year after the signing of the armistice. Mr. Watkins referred to two policies in particular—the one, government regulation and handling of our transportation system; the other, the development and growth of union labor and "its coddling by the previous administration."

Continuing, Mr. Watkins spoke in part as follows:



ALBERT J. NASON

President, Nason Coal Company; Chairman, Coal Sessions, Mining Congress Convention

Coal Prices Practically Controlled by Railroad Car Supply

"On the matter of transportation, I shall but briefly touch. That subject is so well understood I believe by the general public, so far as coal is concerned at least, that I need but call attention to one fact, i. e., that when transportation and cars were available at the mines, there was an abundant productive capacity at the mines to supply all the coal that was needed, provided the miners were not on strike.

"The competition between producers in each district, and the competition between districts and states when transportation was available, has always kept the price of bituminous coal at a low level, and prior to the war at a level so low that approximately seventy-five percent of the production was sold at a loss. If it were not for the fact that a great many of our industries are prostrate today, the railroads of our country would be unable to handle the fuel needed for normal consumption. There are over 150,000 out-of-order coal cars, in addition to 110,376 idle coal cars in order, and at this time last year there was a shortage of equipment. It is absolutely essential that our railroads should be made efficient, and yet we see their inability to procure funds at reasonable rates in order that they may be put in condition to meet the normal growth of our country needs.

Defiance of Public Opinion by Mine Workers

"The other matter is of vital importance, and one that the operator and miner and the public must come together on—and I say MUST because it is inconceivable that the prosperity of this country should be dependent upon the uncertainties and the unsatisfactory state of affairs that exists between labor and capital involved in the mining industry of this country . This is a problem; it always has been more or less, but never more acute than it is today, and never more menacing, not alone to the coal industry, but to the nation at large. The questions at issue are fundamental; they affect personal liberty and the rights of property and a solution must, and will, be found. If it cannot be found by the operator and the miner, it will be found by and through a profound public sentiment of whose judgment, when it is finally made aware of the issues at stake, I have no fear. I refer specifically to the union labor organization, known as the United Mine Workers of America, an organization founded about twenty-five years ago, which has gradually grown into such strength as to think it is able to defy our Laws, our Courts, and the Government itself, and is in the hands of leaders today who have apparently thrown to the winds all conservatism and all sense of responsibility to the public and to the employer. We see men of real ability in this organization discarding all sense of equity and ignoring all economic conditions, all principles of collective bargaining, all moral obligations to the employers with whom they have dealt in the past and, I might say in a true sense, all obligations to those whom they are supposed to have intelligence enough to represent. We see them all engaged in a scramble for power through personal ambition for the control of an organization that can stop the life blood of the nation, different groups fighting one another, outdoing one another in radical demands, ignoring absolutely the heavy burden that the rest of the public is trying to carry, refusing to consider the modification of a contract that was forced on the industry and on the country at large on the verge of the winter of 1919 by a national strike. We have seen the organization in convention at Indianapolis. We have heard of its internal conflicts. We hear it is going to frame up some demands to be presented to the operators of the country which will add to the cost 40 to 100 percent, but we hear nothing to indicate that it has a feeling of responsibility to the rest of the public at large. We see, from their public utterances, an absolute defiance of public opinion; the rest of the struggling, hard-working people of the country, the farmer, who outnumbers them more than fifteen to one, and other industrial workers, have met the issue in a broad and helpful spirit; the United Mine Workers—the greatest single organization of Labor in this country—standing alone, engaged in internal squabbles, with each faction still believing the organization as a whole is strong enough to defy all economic laws, all public opinion.

"The Miners' Convention recently adjourned deciding to delay presenting their demands to the bituminous operators until next February. It may be that by that time these men, or some of them at least, may come to a sense of their responsibility to the rest of the public. There is no sign of it at this time. In their lust for power, not satisfied with the highest rate of pay of any labor in the United States, not satified with the wonderful improvement that has been made in their working and living conditions, these leaders cry for MORE! MORE! MORE! And now they want nationalization of the coal mines and nationalization of railroads."

Mr. Watkins discussed government regulation, past, present and impending, and in this connection congratulated the industry upon the work being done and planned by Secretary of Commerce Herbert Hoover. He said:

PRESIDENT HARDING REQUESTS AID OF MINING CONGRESS

IN A SPECIAL MESSAGE to the representatives of the mining industry in convention assembled in Chicago, President Harding asked the American Mining Congress to formulate, if possible, plans for regulating the production and distribution of coal so as to secure employment the year around for both capital and labor, and thus to prevent congestion of transportation facilities and high coal prices.

The message was read both at the opening of the National Exposition of Mines and Mining Equipment on Monday night, October 17, and at the formal opening of the convention itself the next morning. President W. J. Loring, of the American Mining Congress, announced that the request of the President of the United States would be considered as a mandate.

During the convention sessions Messrs. Nason, Cameron, Morrow, Parker and Scholz were appointed to consider the matter. Final action was not taken by the convention.

The letter from President Harding follows:

"The American Mining Congress:—

"Realizing the unfortunate estate into which the mining industry has come, along with so many others, in the period of depression following the war, I regard as especially important the effort of your Congress to bring about an early improvement.

"The present unfortunate situation being a world-wide one, resulting from world-wide causes, complete recovery must await improvement in world conditions; but there are indications that industry is on the upgrade and mining is sure to reflect the improvement which is marked in some other directions.

"I cannot forbear to suggest that your Congress might perform a useful service in connection with the improvement of conditions in coal mining. A widely variable demand makes the problem of production difficult, especially when it involves an overload of the transportation system at a time when that system is least able to bear it.

With both labor and facilities lying idle for substantially half of each year, the costs of coal are bound to be unsatisfactory to the consumer. Is there no way of regulating the demand so as to distribute it more uniformly over the twelve months? Is it not possible to provide storage reservoirs which will enable the large consumers and large producers to accommodate their conditions to the need for a more constant rate of production?

"I feel that these questions may, with particular propriety, be addressed to your organization. Adequate improvement can hardly be expected in the coal mining industry until the army of working men and the vast capital engaged in it find constant employment.

"I would be glad indeed if your deliberations might produce some suggestions of practical value in dealing with this difficult problem.

"Very sincerely,

"Warren G. Harding."

"There has been much agitation during the past two years in attempts to pass through Congress bills regulating the coal trade. The public becomes concerned when a scarcity of coal is threatened, is thrown into a panicky condition and buys indiscriminately, causing high prices. Then, immediately there comes a public outcry against extortion, and we find plenty of legislators, willing to get into the public eye, proposing bills to regulate the industry; as a rule this outcry is against the operator, and yet the conditions that bring about these high prices have for the past forty years been caused entirely by lack of transportation, strikes on the railroad, or strikes at the mines.

"If Congress would give the necessary attention to re-establishing our railroads on an efficient basis, after years of faulty regulation, one cause for occasional high prices for coal would be removed. Then, if they should give their attention to the prevention of national strikes, and a removal of the cause for them, making the United Mine Workers legally responsible for their contracts, protecting the rights of those who did not want to belong to the union, there would be little need for further regulation.

"There is one encouragement that we have today in the present Administration. In charge of the Department of Commerce is one of the ablest mining men of the country. He is a man of vision and force, and the coal and mining industry of this country can well afford to co-operate with him on broad lines. While we need less government in business, we certainly do need the co-operation of a department which is equipped to study, and has the ability to understand our problems, in order that false theories in regard to the handling or regulation of our industry may not make further headway in the legislative branches of our government.

"It is my judgment that a gathering of proper statistics in regard to invested capital, cost of coal, realization, wages paid and annual earnings might be of value in preventing the passage of such unreasonable, unfair and destructive laws as proposed by Senator Kenyon provided the statistics were gathered by a department of the government which would have no administrative authority, and no incentive to color the facts for political purposes, and whose duty would be confined to ascertaining the facts for the benefit of intelligent public opinion, making unnecessary the disastrous interference through government regulation of ignorant, inefficient or prejudiced public officials in the conduct of this great industry. The general public is very apt to think that coal can be produced at a uniform cost, not recognizing the physical differences that occur and which affect costs in every mine in the country, and has little knowledge of the varying qualities and relative value of these different qualities.

"The American Mining Congress can well afford to give its serious attention to this proposed legislation. If by any chance such bills as the one proposed by Senator Calder about a year ago and the one recently proposed by Seaator Kenyon should pass and become a law, it would inevitably lead to the passage of further regulatory bills affecting every phase of the mining industry and all manufactures, our iron mines, our great steel industry, textiles and shoe manufacturing—none could hope to escape, as there is as good reason for regulating all industries as there is for regulating the coal industry."

FUTILITY OF GOVERNMENT REGULATION SHOWN BY PEABODY

FRANCIS S. PEABODY, to whom the government turned first to secure increased production and better distribution of coal when this country entered the war, in an address at the opening session of the Twenty-fourth Annual Convention of the American Mining Congress predicted the absolute failure of all government efforts to control business—the coal business or any other business. Mr. Peabody was chairman of the Illinois Committee on Arrangements for the convention.

Mr. Peabody said he had been waiting for four years to express his opinion of government control of the coal business, and he was glad to have the opportunity to do so for the first time. It was the opinion of those who heard him that he covered the subject in its entirety and handled the question without gloves.

SECRETARY HOOVER SEEKS CO-OPERATION OF MINING CONGRESS

THE FOLLOWING message from Secretary of Commerce Herbert Hoover was brought to the Mining Congress convention by H. C. Morris, chief of the Fuel Division of the Bureau of Foreign and Domestic Commerce:

"The Department of Commerce is charged, under act of Congress and by virtue of the desire of the Federal Government to be generally helpful, with the stimulation of the distribution of commodities. The mineral production of the United States is, therefore, a matter of keen interest to the Department and one in which it has the greatest anxiety to be of service.

"The Department is not a regulatory Department, but a Department of service. Its functions, so far as they are developed, are largely in the direction of the promotion of foreign trade, the furnishing of statistical information both foreign and domestic, and the conduct of investigation work in the great physics laboratory of the Bureau of Standards.

"Except for a few of the metals our export trade in mineral commodities is indeed badly disorganized, and it is with the purpose of assisting the industry to better this organization that we have reorganized the Bureau of Foreign and Domestic Commerce and installed a Fuel Division. We hope to be able also to establish divisions to directly assist the business in other minerals.

"It is the desire of the Department to cooperate with the great voluntary bodies of the industry in the development of this service, for the Department is endowed with agents in almost all quarters of the world and is able to develop facts with regard to supply and demand, and to assist the American exporter in the actual negotiations of his business.

"Success in selling, whether at home or abroad, is founded upon an accurate gauging of buying ability; and that, in turn, must of necessity be based upon accurate and prompt information of general conditions in the market centers of the world, and upon specific conditions of competing foreign industries.

"In statistical information the reorganization of the Bureau of the Census, to cover a wider field of live and current statistics, is of profound interest to the mineral industry; not only because that industry depends considerably upon the trend of other industries, but also because statistical information of consumption in the industry itself falls far short of satisfying the necessities of the business.

"In the reorganization of the Bureau of Standards to include the wide theme of manufacturing standardization and simplification, the Department again comes into relationship with the mineral industry.

"For all these reasons it is the keen desire of the Department that it should be brought into closest relationship for cooperation with the industry, and it seeks the appointment of a committee from your Congress which will co-operate with the Department.

"The mineral industry of this country should gain a position in the world's trade commensurate with the abundant resources of the United States. We must develop a spirit of mutual helpfulness and coordination of effort in order to meet the competition of organized commerce abroad, and with that purpose in view, I pledge you the full assistance of the Department of Commerce."

"The government," Mr. Peabody said, "should give us pure food, pure liquor, prevent forest fires, protect our water resources and our virgin coal and minerals, etc., but whenever the government steps away from its police powers of protecting our sanitation and our resources it will not be successful. Not even the most stringent form of federal control will ever be successful."

Mr. Peabody stated that when the coal operators met in Washington June 17, 1917, they agreed, at the request of Secretary of the Interior Lane, to fix the price of coal at the mine at $3.00 per ton, their course in this respect having been previously approved by the Assistant Attorney General of the United States. Nevertheless, the next morning the Attorney General denounced their action as illegal, and Secretary of War Baker pronounced the price of $3.00 per ton exorbitant, unjust and oppressive. In the face of these two statements both the coal operators and the public became discouraged. Production fell off, prices soared, and the country suffered. Mr. Peabody expressed his opinion that Secretary of War Baker and the Chairman of the Federal Trade Commission were responsible for the suffering of the people of the United States during the winter of 1917–18, which suffering came about as Mr. Peabody had predicted.

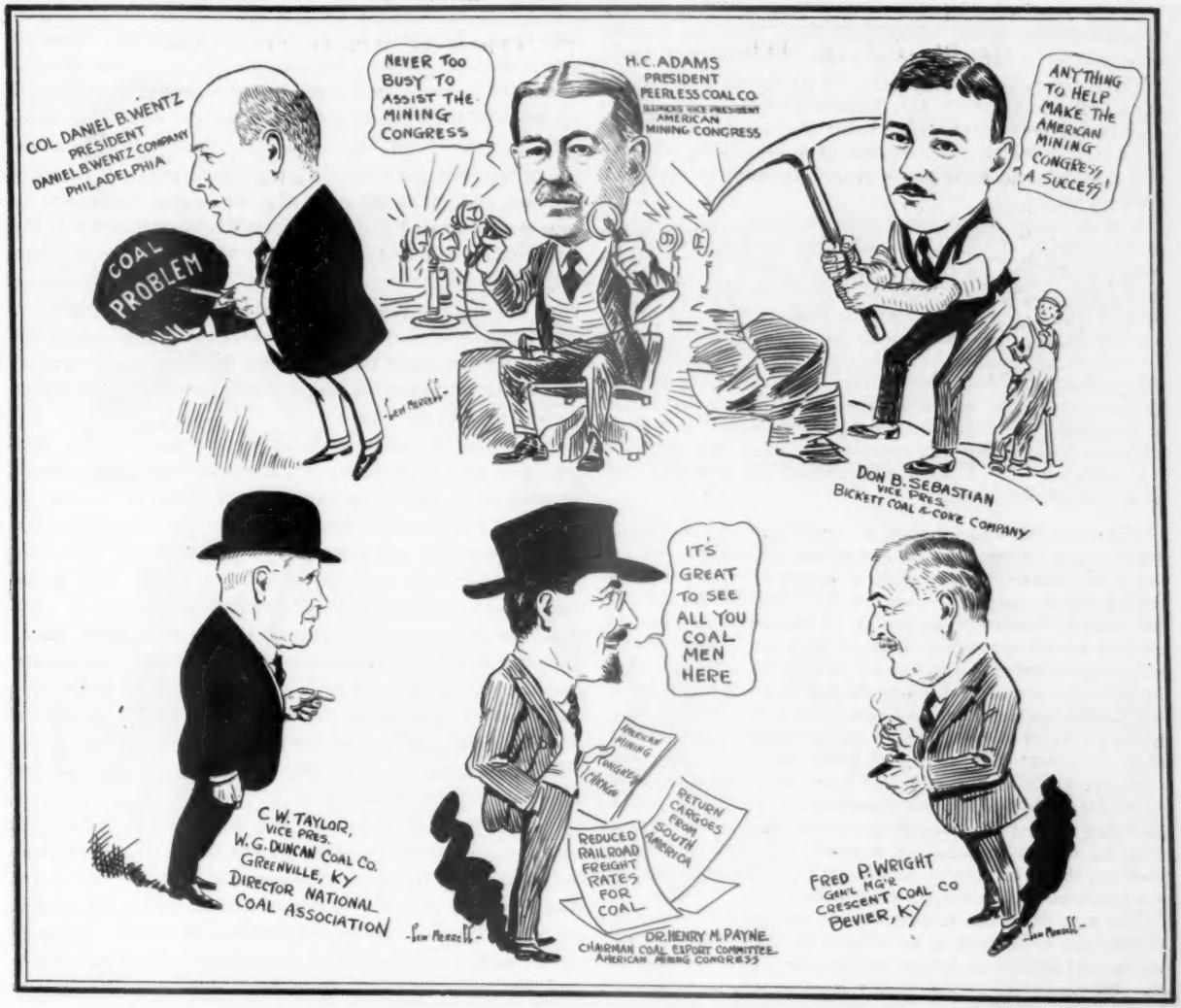
"I do not think that either the Clayton bill or the Sherman Anti-Trust Law have the slightest effect on business," Mr. Peabody said. Mr. Peabody then explained that farmers have a perfect right to combine, and yet corn is selling at 19 cents at the farm; labor has a perfect right to combine, and as a result of the Clayton bill has combined and workmen are demanding $8.00 to $10.00 per day, but the only result is that two-thirds of those who have combined are now out of work. "No law," Mr. Peabody continued, "either granting permission to combine or withholding permission to combine can ever overcome the inevitable law of supply and demand."

Mr. Peabody said that it was laughable to believe that 10,000 coal operators with veins of coal from 2 feet to 50 feet thick, operating in different states under different tax laws and different expense, could ever form an effective combination to hold up the price. He condemned the pending Kenyon bills, saying that no coal operator could understand them, and concluded with the statement that government regulation has no effect other than to embarrass and add to the expense of the coal operators and increase the price to the consumer.

TAYLOR ADVOCATES HOLDING UNIONS RESPONSIBLE FOR THEIR ACTS

HN. TAYLOR, vice president of the Central Coal & Coke Company, Kansas City, delivered an address on "The Relationship Between the Coal Operator and the Labor Union." He stated the labor unions have departed from their original high purpose when arbitration was the means of settling disputes and now more frequently use "economic force," which is nothing more or less than a strike.

Mr. Taylor criticized the check-off system, saying that it was mainly responsible for the growth of radicalism in the miners' organization and that its purpose had been so abused that today it is a menace to the public welfare.



"The huge sums realized from the check-off have been expended to carry on a lawless war condition in more than one of the non-union coal producing states," Mr. Taylor said. "These funds have been diverted in another state and have been used for the defense of the I. W. W.'s under arrest for offenses against the laws of the nation. It was the vast sum created by the check-off which made conceivable the nation-wide strike of November, 1919, when the people were threatened with freezing in an effort on the part of the miners to enforce their demands."

Mr. Taylor insisted that business should return to normal but that the coal mine workmen were doing everything possible to prevent such a return by taking a stand against all wage reductions on April 1, 1922. The public, he said, would bear the extra expense.

Concluding, Mr. Taylor said:

"The high cost of coal is translated into high cost of many other important commodities. Cement is an example; labor and fuel are its principal cost items. High priced cements retards building, and the housing problem is the result. The retarding of the building program has had largely to do with unemployment and high rents.

"The high cost of fuel and transportation keeps high the producing cost of almost every manufactured article, which in turn affects the cost of living. Coal being basic, the cost of all commodities is affected, and there can be no real adjustment on a sound basis until the cost of coal is returned to a peace basis.

"The wage worker is a consumer of all commodities, including the commodity he produces himself. What is commonly called the public is largely the wage worker himself. If we are to adjust and allow business to become normal again, we must treat the situation from a broad, nation-wide viewpoint, and not by class or the individual industry. A high wage paper scale with no work will not help the miner. A fair wage with regular work will build his yearly earnings "to a basis of American living and allow the operator to offer cheap fuel to the consumer and reduce the producing cost of all commodities.

"Gentlemen, it is up to union labor to do its share of the readjusting, not only in the public interest but to help themselves.

"If the miners continue their refusal to make a readjustment of an abnormal wage scale and on April 1st call a nation-wide strike, the operators must assume a public duty of standing for the public rights, and the well-thinking men of this country must stand behind them in this battle for the good of American industry and American freedom against a labor autocracy."

LUDLOW FAVORS EARLY LIQUIDATION OF LABOR SITUATION

IN AN ADDRESS upon "Coal and Labor," Edwin Ludlow, President of the American Institute of Mining and Metallurgical Engineers, stated that the anthracite situation was satisfactory from all standpoints except from the labor point of view. Despite the fact

that the coal mine workmen have more continuous employment than in the bituminous fields, they are making demands for a higher scale of wages effective next April.

Only a very small proportion of American coal can be exported, according to Mr. Ludlow's view. This is due mainly to the fact that American coal must be paid for in money, of which other nations have very little, whereas these other nations can trade among themselves upon the basis of barter.

But the most important feature in connection with the reconstruction of our whole industrial system, as well as with export coal, is the question of labor, Mr. Ludlow said. He emphasized especially the fact that the coal mine workers of America keep in contact with the union mine workmen of England, and that when the time comes for bargaining across the table on the first of next April the demands of the American mine workmen will be largely formulated by the results of the recent agreement made in England, and that the English miners will use their influence to minimize the competition from this country.

Concluding, Mr. Ludlow emphasized the necessity for wage reductions, saying:

"The most important feature in connection with the reconstruction of our whole industrial system that was disrupted by the war is the question of labor, which is fighting to retain every advantage the war gave it. We are now faced with the fact that the raw material produced by the farmer, by the metal miner and, to a certain extent, by the coal miner, is being sold at cost or less, but the manufactured article has not come down in proportion to the fall in the raw material, due to the high wages that are paid in every industry, especially in coal mines and on the railroads. Reductions in wages would reduce the cost of living, and unless these wages are brought down, the cost of living cannot be brought back to the pre-war basis and we cannot hope for the stabilization of our industry until this has been accomplished. The period of hard times that we have gone through has seemed long and we all look ahead for better conditions, but it would be a mistake if those conditions should improve too rapidly until the labor situation has been liquidated and its efficiency brought back.

"The most dangerous doctrine that we are called on to face is the minimum wage based on an assumed standard of living, that must be paid whether the laborer produces the value of his wage or not. The acceptance of that theory can lead only to sovietism. If the laborer is paid more than the value of his product, the operation soon becomes bankrupt unless the difference is made up, and the only unlimited pocketbook is the U. S. Treasury. In that lies the kernel of the demands for nationalization by the coal miners and railroad employees."

EXPORT COAL PROBLEMS

GEORGE S. RICE, chief mining engineer of the U. S. Bureau of Mines, and Dr. Henry Mace Payne, chairman of the Coal Export Committee of the American Mining Congress, presented timely information to the convention.

Mr. Rice, who spoke upon the subject, "Methods Used in Europe in the Control of Coal Mines and the Distribution of Their Products," only recently returned from a European tour made for the purpose of investigating this particular subject. In the course of his address he made constructive suggestions. He spoke in part as follows:

"We have presented here three types of control of mining and marketing of coal. England has the individualistic method, with unlimited competition, as in the United States and with the same tendency to unstable markets, is saved from periods of acute depression from overproduction only by the ability to dispose of its surplus coal by exports. The slow and expensive development of new mines, necessitated by the deep lying coal, is also a break on overproduction. Germany has some government owned mines and the ability to restrict unnecessary development of new mining areas by withholding the granting of concessions, and with selling syndicates operating with full concurrence of the government encouraging export and restricting production to prevent a surplus in the coal market, at the same time encouraging betterments in mining methods; and France has no surplus production but on the other hand need of importing, and, by virtue of partnership with the government, the mine owners always are assured of making profit although ostensibly without condemnation to fix prices.

"It appears to the writer that from England we can borrow the idea of development of exports as a means of disposing of the surplus, the briquetting of fine coal, and the stocking of coal at distant ports throughout the world.

"Regarding German methods, whether we can utilize any ideas from their plan of syndicates is a question. Our whole national tendency is to oppose combinations held to be 'in restraint of trade,' but it is possible we could employ the idea of restraining the overdevelopment of coal mines with its accompanying tendency to wastage and irregular work for miners (which in turn reacts on the cost of coal to consumers) by not giving shipping facilities to proposed new mines unless it was known to some authoritative body, such as the interstate commerce commission, that new developments were needed. In any case we can learn from Germany the utilization of coal byproducts, the briquetting of lignite as well as bituminous fines, and betterments in mining methods such as hydraulic sand filling to prevent subsidance and mine fires, and the use of substitutes for timbering.

"From France we may learn that it is possible to have an amiable understanding or partnership with the government without loss of initiative in mining developments. We also may learn thoroughness in extraction of coal in thin as well as thick beds, and, where there is a large territory tributary to a mine, whether it may be made a more permanent local industry rather than in the usual way to extract hastily the thickest or best coal; also to put in more permanent and even artistic plants which will continue to be the sort of support to the community, over a long period even though this plan may not bring the largest or an immediate return on capital through the quick extraction of the easily mined coal.

"From all three countries as well as from Belgium we can at least learn much in the careful preparation of the coal for the market, the stabilization of the quality of the coal and in matters of briquetting and stocking, and especially from France and Germany give consideration to that part of the purpose of mine operator's organizations which have done so much in those countries for miner's welfare, protection of life, and investigations for improvement in mining methods.

"The writer also ventures to suggest that while the project is an admirable one of encouraging the stocking of coal in the U. S., which has been so much discussed since the war as a means of preventing stoppage of bituminous mines in the summer and consequent need of paying the miners higher wages than in other industries to provide adequate living, the cost of which must ultimately be borne by the consumer, it is a project that will fail to accomplish its full purpose—permanent stabilization—unless some measures are taken, as in Germany, to prevent the overdevelopment of bituminous mines which have already reached double capacity now required by the country."



MEMBERS OF THE MINING CONGRESS STAFF

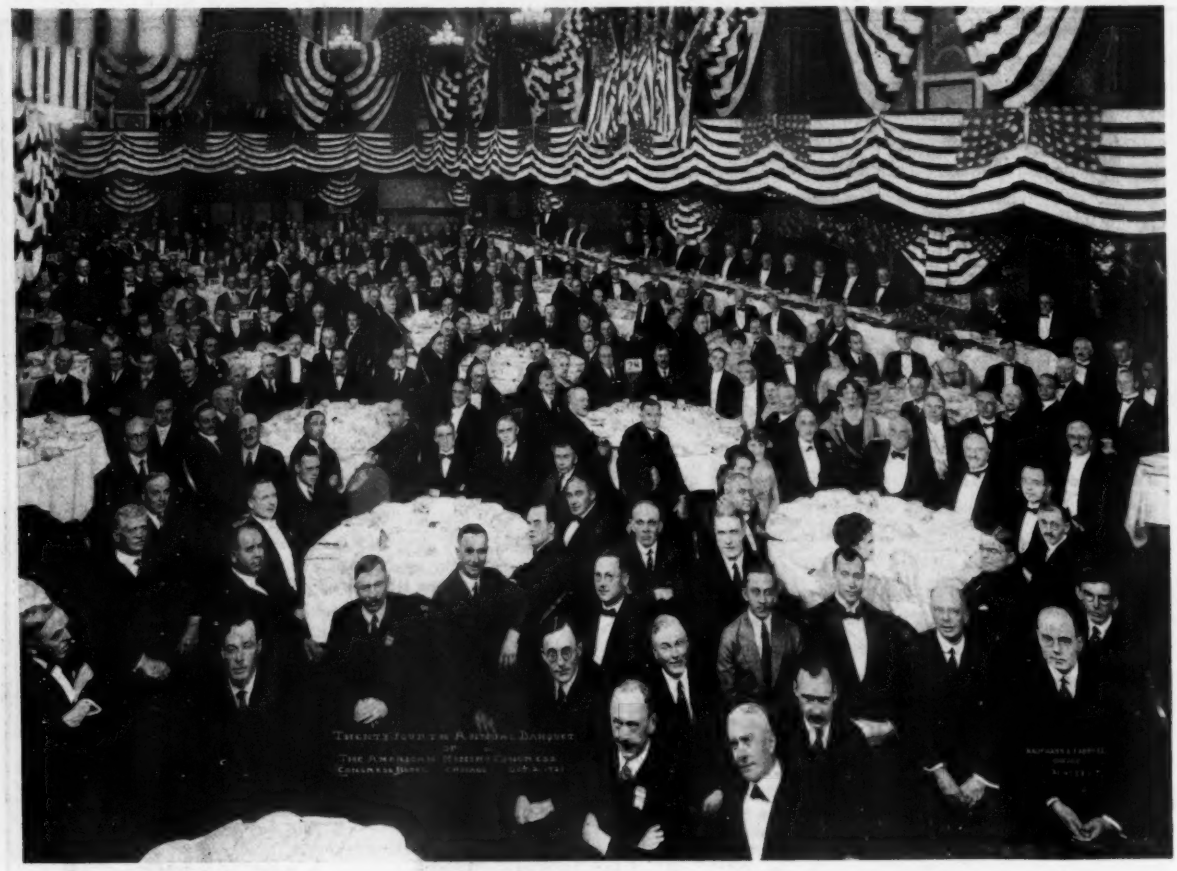
As the cartoonists saw them at the Chicago Convention and Exposition. Upper row, left to right—McK. W. Kreigh, chief of the Tax Division, always willing to assist either the Internal Revenue Bureau or the mining taxpayer; H. N. Lawrie, economist, trying to be of service in bringing about stabilization of exchange rates; George H. Bailey, general counsel, getting ready to pay his respects to those members of the mining industry who fail to co-operate with Congress. Lower row—Herbert Wilson Smith, chief of the Tariff Division; J. F. Callbreath, secretary, in what the cartoonist described as a leisure moment; T. R. Moss, editor of the MINING CONGRESS JOURNAL, looking over the day's convention publicity.

RECOMMENDATIONS OF CHAIRMAN OF EXPORT COAL COMMITTEE

DR. HENRY MACE PAYNE, chairman of the Coal Export Committee of the American Mining Congress, delivered an address on "The Possibility of Development of a Permanent Export Market for American Coals." He presented a brief review of existing conditions in Europe as they apply to South and Central American export business It was his opinion that there is a good export market for American coal and that increased business can be secured if price and preparation are right. He pointed out that Great Britain possesses certain economic advantages such as proximity to the seaboard and assurance of return cargoes, and that these advantages would have to be offset by organized and cooperative selling methods and by such reduction in the cost of production and transportation as would enable American dealers to quote ton for ton against competition. British costs must inevitably be higher than normal American costs of production, according to Dr. Payne's view, but against this advantage American dealers have the disadvantage of having to pay transportation charges for from 400 to 500 miles to the seaboard, the net result being an average British quotation 70 cents below the lowest possible American quotation in foreign markets.

"To meet this condition a group of American exporters," Dr. Payne said, "is now preparing an application to the Interstate Commerce Commission for a flat reduction of $1.00 per ton on coal destined to Europe and South America."

The question of credits was also considered in the ad-



THE ANNUAL BANQUET

At the Congress Hotel, Chicago, October 21, 1921, the night before the close of the Twenty-fourth Annual Convention of the American Mining Congress

dress. The United Kingdom shippers have always extended 60 to 90 day credits to South American consumers. American shippers have difficulty making financial arrangements today because profits are so small. Dr. Payne held that the time is propitious for the formation of intelligent coal exportation movements by American dealers.

"The Webb Act," Dr. Payne continued, "has paved the way for cooperation. The pooling system can be successfully developed to guarantee rigid inspection and quality of product, and to minimize demurrage charges.

"Given the proposed reduction in inland freight rates; reasonable labor costs at the mines; normal charter rates for ocean freights; and America can meet any competition in the world on export coal to the Mediterranean, Central and South American ports.

"When this has been accomplished, the coal industry in America will have become more nearly stabilized, mines will be working more continuously, quality and preparation will be more closely regulated, and coal prices more nearly normal than ever before.

"To this end the Coal Export Committee of the American Mining Congress, representing as it does the producer, the wholesaler, the Bureau of Mines, the exporter, and the banks interested in foreign trade,—pledges its efforts."

PAYROLLS OF MINING AND STEEL INDUSTRIES SHOW DROP

MARKED DECREASES in payrolls of the iron, steel, and bituminous coal mining industries are indicated in statistics compiled by the Department of Labor, comparing figures for September, 1921, with those of a year before. Although the report covers returns from a limited number of enterprises, it is thought to be typical of general conditions.

The greatest decrease in wages paid by any industry in the country is indicated in the returns of 106 iron and steel plants showing a reduction of 71.1 percent. from the total of a year ago, while the number of men employed decreased by 42 percent. These plants showed a continuation of this reduction in the month of September, 1921, wages dropping 5.4 percent. from the August total, although there was an increase of 2.4 percent. in employment.

Both payrolls and the number of men employed increased during September in the 95 bituminous mines making reports for that month, 3.3 percent. more men being added, and total wages paid rising 2.5 percent. Comparison with September, 1920, however, shows a decrease of 11.8 percent. in the number employed, and a drop of 32 percent. in monthly payrolls totals.

SCHWAB DISCUSSES COAL BUSINESS AND GOVERNMENT REGULATION

BUSINESS SUFFERS from an excess of national, state and municipal overhead, in the opinion of Charles M. Schwab, who spoke at the annual banquet of the American Mining Congress on "The Problems of Industry." And, as he pointed out, when business suffers the consumer suffers, and therefore what the country needs most of all is relief from governmental regulation of and interference with private affairs.

Mr. Schwab spoke as follows:

As a large consumer of iron ore and coal, and as a producer of both, I am naturally deeply interested in the problems of the mining industry, and in the efforts which the Mining Congress is making to arrive at their solution.

To my mind, there is nothing in the present business situation which time and the laws of trade and economics will not straighten out. The danger lies in the effort to force an adjustment through legislation.

We are in difficulties, there is no doubt about that. Prices have dropped irregularly. Wages have gone down in some lines, and are maintained in others. Short time has reduced the earnings of many workmen, and unemployment has put a heavy burden on many more.

The products of the farm have dropped to about pre-war levels, and the high cost of transportation invades deeply the farmer's narrow margin. Yet the railroad workers resent any reduction in wages which will make a lowering of freight rates possible.

The building trades in your good city are resisting the reduction in rates, and the changes in rules provided in the very wise award handed down by Judge Landis.

Everywhere the process of readjustment is creating discord and discontent. Everywhere our people want to hold on to what the War brought in the matter of increase in income, and want to lay the sacrifice involved in deflation on some other back.

It is perfectly natural for a baby to cry when you remove the bottle before it has had its fill. It is perfectly human to resist a reduction in one's income, and to submit only after considerable argument and effort.



A LEADER OF INDUSTRY

Charles M. Schwab took his optimism with him to the Mining Congress Convention. Just before he delivered his address at the annual banquet, the artist showed him the above sketch portraying the well known Charlie Schwab smile. Mr. Schwab was so pleased that he wrote his motto, "Keep on smiling," and autographed it with his initials

What a splendid world this would be if we could get back to normal by the mere process of passing a few laws!

We have tried legislation on some things, and it hasn't worked well. We have tried putting directive control of our railroad systems into a single hand, and the memory of that experiment is still vividly with us. Russia embarked on the plan of centralizing the control of all industry in government hands, and no one is anxious to take another chance at that experiment.

Yet many of our people clamor for relief through legislation whenever, after an orgy of prosperity, economic laws insist on reasserting themselves. And our legislators are altogether too prone to yield to these clamors, with the result that inelastic, repressive legislation checks initiative and thwarts enterprise.

I know of no better stimulus for creative ambition than the hope of personal reward. Intelligent self-interest, not selfishness, cannot be equalled in securing results in business. It surpasses any form of communal co-operative effort. And when competition has free rein, there is ample restraint and ample protection to the public interest.

The American business structure is the result of over a hundred years of initiative, enterprise, courage and effort. It has grown to its present size because it has learned through many hard knocks to conform to sound economic principles. Those twin brethren, supply and demand, have in the long run fixed prices fairer to the consumer than could the wisest commission sitting in Washington, and they have imposed heavier penalties for errors in judgment than would a bolshevist court.

I need only point to the terrible losses in silks, in leather, in sugar, within the past year, to indicate the severity of the penalties to those who guess wrong, or who fail to observe economic laws.

What I am trying to get over is that economic laws are constantly at work checking excessive consumption, and stimulating production by raising prices in times of great demand; and reducing production and encouraging consumption by lowering prices in times of depression.

There is no commission or governmental agency that could adjust the balances as well or as wisely.

At the very time when the Government is trying most desperately to get out of the shipping business, it seems to be headed straight for the coal business.

The high prices prevailing for coal during the past year are generally supposed to be due to a combination of the great coal producers, who, by the power of monoply, have raised prices to extortionate heights. It is also supposed that the coal deposits are approaching exhaustion, and that for both reasons government control, or at least regulation, of the industry is imperative.

Yet the testimony given some months ago before the Senate Committee on Manufactures showed that there exist in the United States proper some eleven thousand coal mines controlled by seven thousand operators. The greatly increased demand for coal incident to the European war, as revealed before the same committee, almost doubled the number of mines, so that the fifty-seven hundred and seventy-six operations existing in 1913 increased to eleven thousand in 1920.

Can there be a monopoly in an industry so widely distributed, so widely owned? The very fact that so many new operations started as the result of increased demands shows that there is no monopoly in the ownership of coal deposits, for believe me, a monopoly has altogether too much sense to spread itself in this fashion.

The coal deposits, not counting Alaska, were stated by government experts and coal operators to be between three and four trillion tons. They are for all our purposes inexhaustible and on neither premise, therefore, is government interference or regulation justified.

I have been in competitive industry so long that I am constantly



on guard against an increase in overhead, and I am opposed to the creation of new methods that transfer men from the producing column to the overhead column. I have to be shown that the transfer will bring returns, that it is in reality helpful to production before I give consent.

Yet we have witnessed for some years a constant increase in our national and state overhead expenses. The creation of new departments for supervising this, regulating that, or controlling the other has been going on merrily, and with each additional function assumed by the state or nation some person or group of persons has been transferred from the producing group to the overhead group.

No manufacturing plant would thrive very long if it continued to increase the personnel of its office by reducing the number of workers in its shops.

We suffer today from an excess of national, state and municipal overhead. There are too many of our people employed by our various governments and too few in productive industry in normal times. Every time you create a new commission or new government department every producer groans under an additional burden. I feel most strongly that our legislators ought to bear this fact in mind and that they ought to give American industry an opportunity to adjust itself without loading it up with any further overhead.

I don't want to take your time to go into the details of high coal costs, but want to submit just a few thoughts that have occurred to me as aids to an improvement in the bituminous coal industry Undoubtedly you have had the same ones many times, but they will ose nothing by repetition.

The productive capacity of your mines in normal times is fifty percent greater than your demand, and it follows therefore that your mines, even in fairly prosperous times, must shut down a third of the time. It means that 700,000 men must be idle one-third of the time and that their wages must be increased so that they can live for twelve months on the earnings of eight. It means that two billions of capital invested in the industry is profitably employed during only two-thirds of the time, that deterioration of timber and machinery during the idle time must be paid for, that pumping and ventilating machinery must be kept going whether there is coal output or not.

And all these adverse factors which add so materially to the cost of coal must inevitably be passed on to the consumer.

Your problem is to distribute your demand more uniformly over the twelve months, and this can be done by such a concession in price as will induce large consumers to undertake the expense and suffer the deterioration of heat values incident to storage, and to pay the interest on the investment.

The waste due to the intermittent operation of the coal industry is a heavy public burden which ought to be reduced, and only a distribution of the demand over the twelve months period will do it. Make it worth the consumer's while to store the coal and he will do so. There, I believe, lies the solution of one of your major difficulties.

BITUMINOUS PRODUCTION INCREASE FAILS TO REACH PRE-WAR PLANE

BITUMINOUS COAL PRODUCTION increased sharply during the week ended October 15, but remained much below the level reached in corresponding weeks of the past four years, according to the Geological Survey. The week's production was 9,696,000 tons, including lignite and coal coked at the mine, a total which stands 573,000 tons above the figure for the previous week. The average for the first 15 days of October was only 1,568,000 tons, indicating that production is still below the pre-war level.

A study of the number and capacity of bituminous mines which were idle during the week ended October 1, show improved conditions as compared to the results of tabulations made for the week ended August 20, the percentage of mines closed during the entire week falling from 36.0 to 32.8. It was shown, however, only 3.4 percent of the mines reporting to the Survey for the corresponding week in 1920 were idle.



CHARLES PIEZ

President, Link Belt Company, chairman of the Speakers' Committee for the Annual Banquet

Annual Address of President W. J. Loring

Delivered at the opening of the Twenty-fourth Annual Convention of the American Mining Congress, Chicago, October 18, 1921



ANOTHER year has passed, all too soon, perhaps because we have been so occupied with serious problems that we have paid little heed to the passage of time. The receipts for the year just ended show the substantial figure of $150,000, which, compared with the year before, again indicates the hearty support of its members and subscribers. This is the best indication of approval of our endeavors during the last period, and it has been a strenuous one, indeed.

The efficiency of the organization has been well maintained and is available at all times, and for all purposes, for its members at its headquarters in Washington.

The Mining Congress Journal has grown in importance and I think it is a useful journal and one of which the American Mining Congress members should be proud. It does not trespass upon the rights of the other publications and is altogether a creditable journal. It has earned some profit, which is a fine achievement for a newly-born journal of this kind. The usual bulletin service continues and gives much satisfaction to members of the Congress, as the details contained in these bulletins are of vital importance to the mining industry.

The American Mining Congress is a useful organization to the various branches of the mining industry and is being looked upon more and more each year as the mouthpiece of the mining industry. This is what it exists for and I hope that each year will see the membership increase as it has done in the past, as that will prove that it is growing in importance.

The Congress has passed through a most trying year. Your directors and able secretary have been ever mindful of the great task before them and have given good council during these most trying months when every one and everything pertaining to our affairs have been at high pressure; when the slightest mistake would have been considered ample opportunity to find fault. Under these conditions, great strides have been made. Note the wonderful exposition in the next room. Do you suppose that show came into existence without great effort? I should say not. Could it have been accomplished during these days of cautious expenditure of money if there had not been confidence in the American Mining Congress? I say, no.

We have continued our campaign for the passage of the McFadden Bill. While we have not been successful in getting the support we had anticipated when the campaign was commenced, we have not given up hope, for some good will come from the energies put into this campaign.

The troubles of the country have not been finally settled. In my opinion, capital and

labor must work in harmony. They must try and see the troubles of each other; labor must not feel that the burden is all upon its shoulders. Just as long as there is a lack of understanding on the part of labor that the employer has his troubles, and that these troubles are not beyond understanding at that, there will be useless waste of energy and strife between them. There is no mystery in any of these businesses; nothing that should not be fully discussed and as fully understood by labor. The one great principle should be fairness and I so hope that we American people will come to use the good sense that this great country has been the means of giving us, and that has been helped by the freedom that extends to the border lines of our wonderful country, and that common sense will prevail in the settlement of disputes that may confront us from time to time.

Blood cannot be extracted from a turnip; neither can an industry exist if the cost of production is more than the same value of the product. These facts cannot be ignored. Then why the unnecessary strife and bad feeling that is allowed to be born if the actual fact proves that there is only one way for a settlement?

I am a large employer of labor and am well versed in the trials of both sides; hence, my remarks as to the uselessness of disputes when the fact of a necessity for arbitration can so easily be ascertained.

Our government has its troubles these days. Let us all do our part to relieve the strain upon those in Washington; by so doing we relieve ourselves of unnecessary strain also. President Harding has been good enough to write us suggesting that we take up certain matters during our week of deliberations here. We look upon this as a command and the American Mining Congress is ready to assist the government of the United States to the fullest extent at all times and I am sure that you will support me in this statement. I will ask our secretary to read the letter presently.

Now, before closing my remarks, I am going to take up your time for a moment to call attention to one member of this organization who is responsible for our being here today. It falls to the lot of some one man, or woman, in all businesses to be the real foundation upon which the business is built. Sometimes, very often in fact, that one person is assisted by valuable assistants. Altogether they make a great success but the one individual has organized, selected assistants, etc., and he, or she, is the brains behind the scenes without whose guiding spirit the business would fail to function. That man in the American Mining Congress is Mr. J. F. Callbreath, your ever faithful secretary, who does not save himself but stands ever ready to protect this wonderful organization that is due to his untiring efforts. He is ably assisted and I can speak with some knowledge of him and them because I have been closely associated with the American Mining Congress for the past year. I just wanted you to know my opinion of your worthy secretary, who is too modest to speak for himself and who will not, perhaps, altogether like what I have said. I did not ask his permission; however, I believe in fair play and giving credit where credit is due.

UPON announcing to the convention the unanimous re-election of W. J. Loring as president, Secretary Callbreath in presenting him to the convention, said:

"May I be permitted at this time, as I am about to present to you the president for the ensuing year, to express my heartfelt appreciation of his cordial sympathy, his active cooperation, his earnest effort at all times during the past year to sustain the efforts of our organization and to do all of those things which a president can do in building up and strengthening the organization. It is a very gratifying thing to be able to state that during a year of very great depression, as this has been, and particularly in the mining industry, the American Mining Congress has been able under his wise leadership and assistance to keep up its financial support; we have been able to maintain our organization intact; we have done many things and incurred a number of outside expenses which have been more or less unusual, and I want to say that without that cordial support this work could not have been accomplished. This was a year of depression. Most every organization which had been in the habit of giving expositions, this year said, 'No, it is foolish for us to try in this time of depression to pull off any enterprise which calls for financial support of the business interests.'

"Our leader said, 'When the others falter it is time for us to go ahead.' His watchword was, 'Let's go.' I point with very great satisfaction to this marvelous Exposition of Mines and Mining at the Coliseum as a tribute to that policy of our president who said, 'Let's go.'

"I take great pleasure in presenting to you Mr. Loring, the president for the ensuing year."

THE NATIONAL MINE TAX CONFERENCE

By McK. W. Kriegh
Chief of the Tax Division, American Mining Congress

FARREACHING RESULTS should be obtained from the deliberations of the national mine tax conference between state officials and representatives of the mining industry held October 17-22 in conjunction with the twenty-fourth annual convention of the American Mining Congress at Chicago. Realizing that the difficulties now confronting the mining industry on account of depressed conditions and high taxes require a policy of economy in state and local expenditures and that the present disparity between the various state taxation and revenue systems places the mines of some states at a disadvantage as compared with competitive mines of other states, the conferees gave the subject of state taxation of mines special consideration.

The keynote of the convention, "conservation of our natural resources by the elimination of waste and inefficiency wherever found," suggested by President W. J. Loring, was taken as the basic purpose of the conference. The discussion was predicated upon the waste that is going on in the mining districts on account of the tendency to extract high grade ores and leave low grade ores, particularly in the case of metals, which can not be mined at a profit under present market conditions and increased state and federal tax burdens.

In outlining the purposes of the conference, Paul Armitage, chairman of the Mining Congress Tax Committee, declared "that mines are national and in part international enterprises. They are not local. They do not sell their products in the states, but sell them over the entire country in competition with mines of other states and of other countries. Therefore, the need of uniformity of taxation becomes paramount." "There has been a progressive movement in certain states in recent years," he said, "toward the penalization of mines, and that movement has been growing until the mines of those states are in a position where they can not operate against that penalization."

In an address delivered at the opening session of the conference on the work of the National Conference of Commissioners on Uniform State Laws, Nathan William MacChesney, chairman of the Executive Committee of that organization, pointed out that each state regarded the matter of taxation as its own concern, and usually proceeded on the principle that the right to tax was the right to raise revenue wherever and however possible until the squeal of the taxpayer became so loud it had to desist. For that reason, he said, the organization, while it had secured the passage of many uniform laws, had taken no definite action on the matter of uniform taxation. He noted, however, that there is a growing feeling that a state can not afford to penalize its own industries in such a way as to drive capital from the confines of the state. He suggested that if this conference decided uniform taxation of mines is desirable, the National Conference on Uniform State Laws could be of very real service in formulating an act which would stand some chance of passing in the various states, particularly if it had the backing of the mining industry when introduced into the state legislatures.

Continuing the discussion with an address on the difficulties of administration of tax laws, Robert N. Miller, formerly Solicitor of Internal Revenue, called attention to the fact that in the case of mines there does no exist that natural restraint upon the local taxing power which exists where the people of a locality consume the product, and therefore there is lacking the control of local influence which usually equalizes taxation in the case of other industries.

Other speakers at the conference were: Judge E. C. Stimson, Colorado, Hon. Chas. R. Howe, Chairman, Arizona Tax Commission, Hon. J. G. Armson, Chairman, Minnesota Tax Commission, Hon. H. B. Barrett, Michigan, Hon. A. G. Mackenzie, Utah, Mr. J. C. Dick, Utah, Mr. Burton Bunch, New Mexico, Mr. D. M. Kelly, Montana, Mr. Geo. E. Holmes, New York, Mr. H. B. Fernald, New York, Mr. C. Zapffe, Minnesota, Mr. T. O. McGrath, Arizona, Mr. Arthur Thacher, Missouri, Senor L. de Silva representing the republic of Mexico.

The situation in Minnesota illustrates how seriously the mines of a state may be affected where there is no restraint upon the taxing authorities. In the year 1920 the total of taxes levied for all state and local purposes on mineral property in Minnesota amounted to $20,255,223; but local levies were said to be largely responsible for this heavy burden. The average per capita levy for local and school purposes in 77 cities and villages in the state, not located in the mining districts, amounted to $31.89 in 1920, while in 17 cities and villages located in the mining districts the average per capita levy for local and school purposes was $164.29. The levy in one village of about 2,000 inhabitants represented a per capita tax of $557.28 for every man, woman and child in the village. Another village levied $320.16; one $263.15; and another $244.91, while the so-called "richest village in the world," the town of Hibbing, had a per capita tax levy for local and school purposes of $222.13 for each of its 15,000 inhabitants. This year, however, an effort was made by the state legislature to curb extravagant local tax levies by placing a per capita limitation on the amount that might be levied for local and school purposes of $160.00. At the same time, the Minnesota legislature increased the state burden upon mines by enacting a law providing for a tonnage tax in the guise of an occupation tax under which there is imposed on persons or corporations engaged in mining iron ore a tax equal to 6 percent of the valuation of all ores mined during the year. The valuation used is the value of the ore at the mouth of the mine, less certain mining and shipping costs. This occupation tax is in addition to the ad valorem tax.

Expressing his opinion that the ad valorem basis of taxing mines is an inequitable basis for taxation, J. C. Dick, formerly chief of the valuation section of the Subdivision of Natural Resources, U. S. Bureau of Internal Revenue, favored the net proceeds method, in force in many of the states, as the best method for taxing mines for state purposes. He spoke against the policy of heavy taxation for conservation, stating that such a policy results in a great deal of ore being left in the mines that otherwise would be brought to the surface. "That is not conservation," he said, "it is waste and that is what the tax laws of Michigan and Minnesota are tending to do."

In discussing the Arizona system, Chas. R. Howe, chairman of the Arizona Tax Commission, stated that the constitution of Arizona is wide open on the subject of taxation, the latest amendment providing that "The manner, method and mode of assessing, equalizing and levying taxes in the state of Arizona shall be such as may be prescribed by law." Upon this point, D. M. Kelly, Montana, said that in his judgment there is too much tendency in some of the states to pass what they seek to term flexible statutes, and that taxpayers' rights are bet-

ter protected by constitutional provisions that are inflexible and furnish the same yardstick for everyone.

The methods of taxation and tax laws of Colorado, Idaho, Kentucky, Louisiana, Montana, New Mexico, Utah, and Wisconsin were discussed at some length, and there appeared to be no uniformity, either as to rate or measure of valuation. A constitutional article submitted by the Assessment and Taxation Commission of Louisiana to a state constitutional convention this year with reference to the severance tax on natural resources was considered. The article provides that "Severance taxes may be levied on natural resources severed from the soil or water, according to quantity or value, which shall be paid by the owners, at the time of severance, and may be in lieu of other taxes on the property producing the same," and provides further that "no local subdivision shall levy a production or severance tax." The commission in offering this amendment stated that the general property tax does not recognize any economic difference in the value of property, that the severance tax is fairer and much cheaper of administration, and that the state should look to the future as well as to the present and not hamper by taxation the development of any industry that would probably in the future furnish taxable wealth from which a constant revenue might be derived. This report was made after members of the commission had made an exhaustive study of systems and conditions in other states, and an examination of the reports of the various other state commissions by the Tax Division of the American Mining Congress disclosed no other pronouncement of attitude so unbiased and fair toward business.

Among the delegates the opinion seemed to be general that it would be impossible to formulate a uniform plan of taxation which would apply equitably in all states, on account of the great diversity of conditions and the character of the ore deposits in the different states. In many states the ore tonnage can be accurately measured, while in others no estimate would be possible that could be relied upon with any degree of certainty. It was also established that there exists a local prejudice in many states against large mining corporations, non-resident stockholders and owners of mineral properties, and that these are being heavily taxed on the theory that they are taking the natural wealth entirely out of the state and should therefore pay to the state a heavier contribution than that imposed upon other industries. Upon that basis, as stated by Mr. Armson of the Minnesota Tax Commission, "those mining districts are proceeding with the theory of getting it while the getting is good." That such an attitude is wrong in principle and should be condemned was not denied by any of the official delegates. It was the consensus of opinion that the only hope for relief from the excessive burdens of state and local taxation in the immediate future lies in sincere co-operation between state and local authorities and the taxpaying public. The attitude of mining men was ably expressed by Judge E. C. Stimson, Colorado, who said that the suggestion that taxpayers should treat government agents as honest men, called for the suggestion that government agents should treat taxpayers likewise. "Most of us," he said, "are perfectly willing to perform our civic duty even though it be at some sacrifice to ourselves. Most of us are anxious to bear the burden of citizenship and bear it properly and bravely and honestly. We are more than glad to respond to any reasonable demand that may be made upon us, but we want to be treated fair and handled at least with as much consideration as is received by others in the same situation."

Recent developments in federal tax legislation were outlined by George E. Holmes, New York City, who explained the provisions of the new revenue bill and proposed changes which will affect the mining industry if the bill becomes a law. Other bills which, if passed, would constitute a serious blow to owners of mineral properties were discussed. The uncertainty which exists on account of the great divergence of opinion among members of the Senate concerning many of the provisions of the new bill is seriously retarding the efforts of business to get back to normal conditions. There is a tendency of certain political groups to endeavor to secure special advantages for particular classes or localities rather than to follow a broad constructive policy of agreeing upon measures which will benefit the country as a whole and which will apply to all classes and localities alike in proportion to the tax burden which each class or locality is carrying. This was cited as being contrary to the principles of equity and justice which should govern in working out a program which will stimulate and revive industry.

A feature of the conference was a paper on taxation of mines and mineral lands in Mexico read by Senor L. de Silva, appointed as a delegate by President Obregon to represent the government of Mexico. Senor de Silva described the various methods of taxing mines, and presented some very interesting data concerning the natural wealth and resources of that country. "A mining property under Mexican law," he said, "is a group of mining *pertenencias* covered by one mining title. According to the Mining Tax Law, enacted June 27, 1919, there are three kinds of taxes, first, on the mining property; second, on the metals produced; and third, or smelting, assaying and coining. The first one or tax on mining property or Mining Tax, is an annual rate paid on each mining claim unit; the mining claim unit is the *pertenencia*, say a prism of indefinite depth whose outer base is a square, one hundred meters to each side, or ten thousand square meters." He stated that the tax tends to limit the control of great extension of horizontal area, by one single individual or corporation, because the annual rate per claim unit increases in proportion to the number of *pertenencias* owned by a single individual or corporation.

Some very excellent contributions were made by all of the delegates during the discussion and a full record of the proceedings will be published with the general proceedings of the convention. No plan of uniform taxation of mines was proposed, but the conference adopted resolutions providing for the appointment of a committee of ten members to collaborate with a special tax committee appointed by the American Institute of Mining and Metallurgical Engineers to investigate the taxation and revenue systems of the various mining states and make a joint report of their study and research. This report will be published for the information of legislative bodies and mine taxpayers throughout the United States.

NATIONAL EXPOSITION OF MINES

"AN UNQUALIFIED SUCCESS," was the comment made by every exhibitor and visitor at the National Exposition of Mines and Mining Equipment, held all during convention week at Chicago. Approximately 150 exhibitors, embracing the majority of those who deal with mines, held a meeting on the last day and voted unanimously to participate in the next exposition.

Almost every conceivable kind of mining machinery and equipment was seen during the week. Each piece of machinery was displayed in an artistic manner in a decorated booth, while most exhibits were in full operation.

was held he worked to increase attendance with results which will long be remembered by the exhibitors, by the operators and the other members of the American Mining Congress.

A feature of the entertainment of the smoker was the appearance of a vocal sextet of coal miners from the Hudson Coal Company. On the second day of the exhibit, when it was seen that the exposition would be a success and that the capacity of the banquet hall during the smoker would be taxed, D. F. Williams, vice president and general sales manager of the Hudson Coal company, wired to the home office to send on the sextet at the company's expense. They arrived just before the smoker and at once



CENTER SECTION OF THE NATIONAL EXPOSITION OF MINES

Wednesday night of convention week an exhibitors' smoker was held at the Coliseum. There were a few more than 1100 in attendance, and practically every one of them was a foreman or superintendent or other employee of a coal mine. Those in attendance were guests of the exhibitors, and it was the opinion of the latter that no greater opportunity for calling attention to their wares had ever been presented.

The smoker was made the occasion for having a genuine good old time. Ralph Becker, the chairman of the Smoker Committee, arranged an entertainment program which was superior to the bill offered at any Chicago theater. For more than a month before the exposition

became the center of attraction, and they held the spotlight during the remainder of the week. The members of this sextet were Perry Scriven, bass, who was also the manager, Tom Weaver and George Weaver, leads, Joe Wetter, baritone, Marty Size, bass, and Steve Mackeral, first tenor. They were accompanied on the piano by Clay Bowland. Mr. Bowland is their regular accompanist back in the Pennsylvania mine fields.

The big entertainment feature of the entire exposition was, of course, the police band from Mexico City conducted by Senor Campos. This band was brought to the exposition by Luis N. Rubalcaba, Assistant Secretary of Commerce and Industry in the cabinet of President Obre-



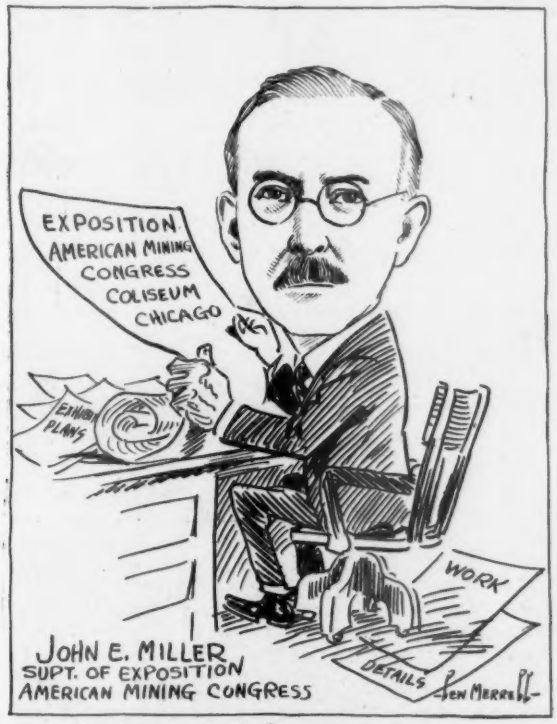
OFFICIAL EXHIBITS ON THE PLAZA OF STATES

gon. It contains 96 pieces and has been pronounced by Toscanini one of the best bands in the world. The coming of this aggregation of famous musicians was not known in advance. When they paraded down Michigan Avenue both the public and the Mining Congress received their first intimation that they were in the city. They marched to the Coliseum on Friday afternoon, entered and took seats unobtrusively in the balcony; no one knew they were present until they struck up the tune of LaPaloma, whereupon everybody in the exposition forgot that anybody else or anything else was present.

The Mexico City Police Band is the official band of the President of Mexico and occupies the same status in the capital of that Republic that the Marine Band receives

in Washington. Its appearance in Chicago was not only a tribute to the Mining Congress which was deeply appreciated, but a very manifest indication of the desire of Senor Rubalcaba and his chief, President Obregon, to increase business between Mexico and the United States.

The center of the Coliseum was given over to the exhibits of Mexico, Alaska, the United States government and various western states.



The California exhibit occupied the northwest corner of the Plaza and contained a complete showing of all the mineral resources of the Golden State, of which about fifty are produced in commercial quantities. This exhibit was in charge of Walter E. Bradley, mining engineer, who was assisted by Mrs. Bradley. A feature of the display was a special display of gold, platinum and diamonds shown in a specially constructed and lighted safe. This safe contained minerals valued at $30,000 and was guarded day and night by detectives.

Another attraction at the California exhibit was a large block of wood painted to resemble gold, containing 65.8 cubic feet. An amount of gold equal to this space has been produced in California upon the average every year for the last 72 years. A block of gold this size would weigh 39½ tons and be valued at $23,891,918.

The attractiveness of the exhibit was added to by numerous portraits and likewise by charts of the state's mineral resources.

The center of the Plaza of States was occupied by the Alaskan exhibit, which was arranged by the territorial government and the Alaska bureau of the Seattle Chamber of Commerce in co-operation. J. L. McPherson, secretary-manager of the Alaska bureau of the Seattle Chamber of Commerce, was in charge and was assisted by John Ronan of Hyder, Alaska, and Stephen R. L. Foster. Mr. Foster, who was an Alaskan miner for fifteen years, entertained thousands of people during exhibition week by panning gold. This process was, of course, new to Chicago, and, in fact, to the vast majority even of the visitors to the exposition, and was, therefore, very interesting.

The Alaskan exhibit was notable in that it was the first comprehensive showing which has ever been made of all of the resources of the territory. A sign conveyed the information that there are 100,000 square miles of agricultural lands in Alaska, while jars of preserved vegetables, exceedingly tempting to the eye, showed that some of this fertile territory has been utilized. There were cans of salmon, big jars of herring, and the whole side of the wall was ornamented with shocks of wheat. There were samples of wheat and blocks of coal from the Matanuska and Bering fields.

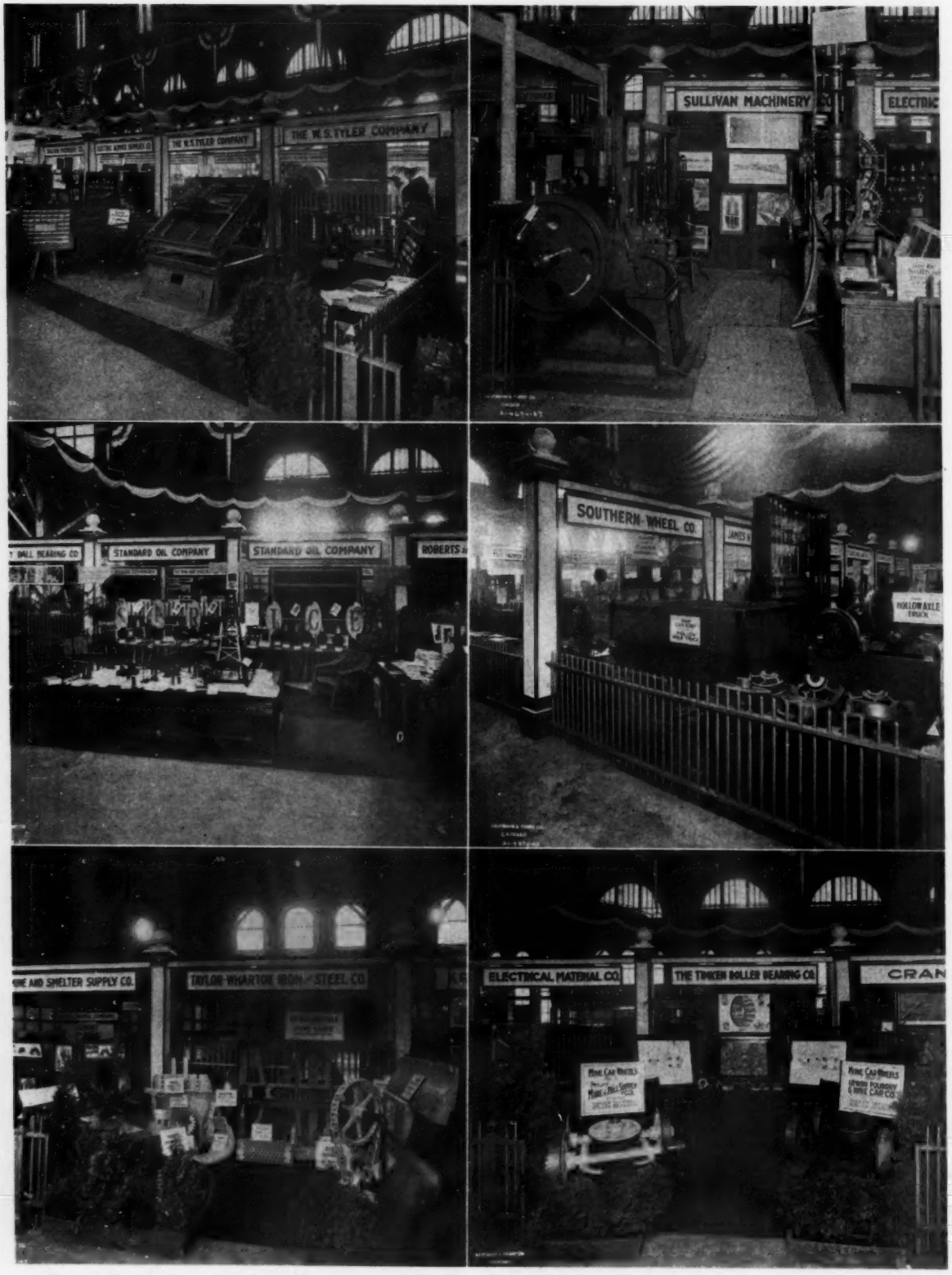
The Alaskan exhibit was so big that it overflowed and utilized part of the space occupied by the United States Bureau of Mines. M. F. Leopold, of the Bureau of Mines, was in charge of the Alaskan exhibit until Mr. McPherson arrived.

The first exhibit to attract the eye on the Plaza of States immediately to the right of the entrance was that of the Lake Superior Iron Ore districts. In the center of the exhibit was a large model of the Norman mine, in the Mesabi range at Virginia, Minnesota. There were many samples of ore from the Mesabi, Vermilion and Cuyan ranges of Minnesota, others from the Gogebic range of Michigan and Wisconsin, and still others from the Menominee and Marquette ranges of Michigan.

Blocks of peat in the Lake Superior exhibit attracted considerable attention throughout the week. A sign conveyed the information that there are in Minnesota alone 5,217,000 acres of peat, or 6,835,300,000 tons, or more than half the estimated supply in the United States. Peat by-products were contained in glass cases.

The exhibit also contained a complete model of an underground mine with drift, hoist and shaft and all the machinery in working order. Some very excellent art work contributed to the attractiveness of the exhibit. One of the photographs was that of the Hull-Rust mine at Hibbing, the greatest open pit mine in the world. Many millions of tons of ore have been taken from this mine, and the hole which has been dug is the largest man-made hole on the face of the earth. At its deepest place



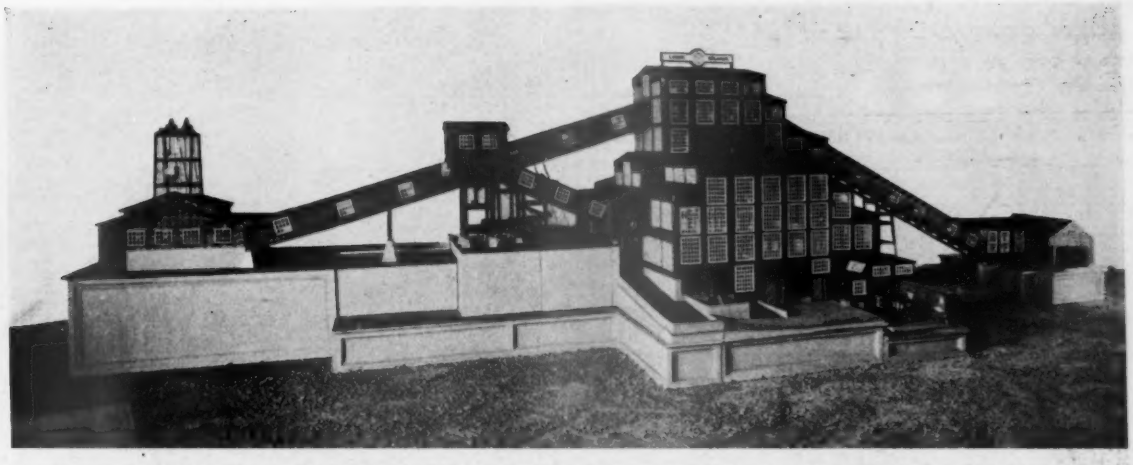


it is 200 feet deep, and it is one mile wide and two miles long.

The Lake Superior exhibit was in charge of F. A. Wildes, superintendent of state mines of Minnesota, and J. P. Funk, of St. Paul.

The exhibit also included a complete model of the mines experiment station of the University of Minnesota.

All visitors to the exposition were attracted to the Utah exhibit, but those who went into the balconies were attracted at once. That was because the exhibit was in the form of a panorama surmounted by a bee-hive—an emblem of the industry of the state. Everyone's atten-



THE WORLD'S LARGEST COAL BREAKER

A working model of the Loree Coal Breaker was exhibited at the National Exposition of Mines by the Hudson Coal Company. One side was left open, showing the machinery in operation. The exhibit was the costliest one at Chicago and was one of the many which held the crowds throughout the week.

tion was, of course, attracted to the beehive. Close inspection of the panorama showed that the emblem was appropriate. The State University, Salt Lake City, the Grand Canyon, Bryce Canyon and other scenic places were shown on transparencies; also a photograph of the Utah copper mine taken from an airplane especially for the National Exposition of Mines and Mining Equipment. There was a picture of the largest open cut copper mine in the world, showing an entire mountain diappearing under tax upon the mining industry, and an illuminated map illustrating Salt Lake City's central location with respect to the western metal mining industry, and numerous balloptical views of copper operations. The exhibit also included specimens of oil shale and oil shale products.

The University of Illinois exhibited a complete model of the grounds and buildings covering 100 acres at Urbana and Champaign.

The Colorado exhibit was featured by a display of the operations of radium, for which a dark room had been constructed. The salts of this precious mineral and facsimile representations thereof gave an adequate idea of just how small a quantity of radium can call for the expenditure of $50,000. Radium exhibitions were given without interruption during every afternoon and evening during the exposition, and there was always a waiting line in front of the door.

The Colorado exhibit included a complete showing of all the minerals found in the state, together with mineral waters and artistic specimens of Van Briggle pottery, for the manufacture of which the State has become famous.

M. B. Tomblin, secretary of the Colorado Metal Mining Fund, was the officer incharge both of the collection and arrangement and display of the exhibit. M. J. Collins was directly in charge of the exhibit itself, and was assisted by H. F. Lunt, State Commissioner of Mines, and other Colorado citizens who attended the convention.

Perhaps the most gaily decorated exhibit in the Coliseum was that of the Republic of Mexico. It contained specimens of every mineral substance mined in the Republic, attractively displayed beneath the Mexican colors and the outspread wings of the Mexican eagle. Ign. Orozco was in charge and was assisted by Ign. Silva, Mr. Lambarrie, Mr. Yzaguirre Jr. and Miss Esther Huerta.

Scientists who attended the exposition were very enthusiastic in their remarks about the Mexican exhibit. Ray W. Arms, assistant professor of mining engineering at the University of Illinois, was so pleased with the display of Mexican minerals that he called the attention of his entire student body thereto and invited them to visit the Mexican booth, which most of them did. Henry W. Nichols, assistant curator of geology of the Field Museum, also stated that he found the Mexican exhibit exceedingly interesting.

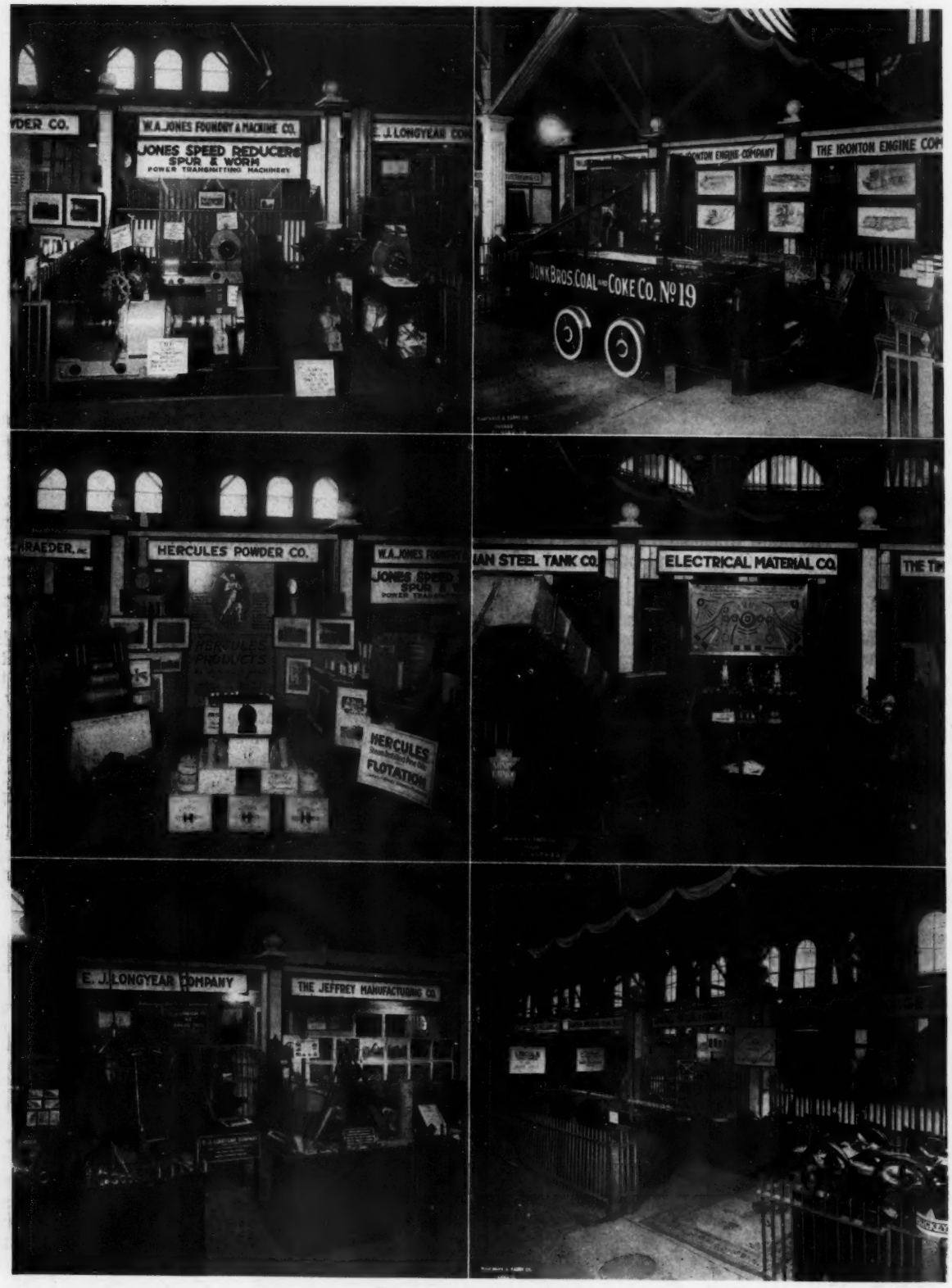
A page could easily be written about every exhibit in the Coliseum. The following condensed descriptions will give an insight into the amount of time, money and thought expended in making the Exposition successful.



American Car and Foundry, New York City.—This company featured a steel coal mine car running on a track, this car being equipped with Hyatt bearings and being of the rotary dump type. A full line of mine cars and mine car equipment was contained in the booth, as well as roller bearing wheels, taken apart to show the construction of each part, road building cars, automatic dump boxes, mine car trucks, wheels, roller bearing parts, and automatic couplers. Edmund D. Buick was the head of the company representatives present.

American Manganese Steel Company.—A miniature model of an improved type of gold dredge bucket line was in operation, the principal feature of the design being that the buckets fit the contour of the round lower tumbler, yet also provide for a straight surface to fit on the hexagonal upper tumbler.

Engineers and miners were also impressed with the points of merit



of the Missabe-Vanderhoef shovel-dipper model, and the interesting display of AMSCO manganese steel mine car wheels, teeth, screen plates, crusher parts, tube and ball mill liners, pulverizer parts and steam shovel repairs made at their Chicago Heights, Illinois, New Castle, Delaware, and Oakland, California, plants.

American Mine Door Co., Canton, O.—The exhibit consisted of an automatic mine door and an automatic switch thrower, both devices being installed on a track the same as operated in the mines. A locomotive running back and forth on the track demonstrated the operation of these devices.

The automatic door extended diagonally across the track and consisted of two wings which swung in unison in opposite direction

as the locomotive approached the doors, and closed immediately after the locomotive passed through, the action being positive and rapid.

American Steel & Wire Company, Chicago.—The majority of this exhibit consisted of wire rope of all kinds, sizes and types of





construction for coal mine equipment. Cables for mine machinery and electrical equipment were also on display, and rail bonds with an arc welding machine for this kind of work on mine tracks were exhibited. Representatives of the company, headed by B. H. Ryder, demonstrated these products, explaining the wire pulling process and the mesh weaving of wire rope used in coal mines.

Atlas Car & Mfg. Co., Cleveland.—The exhibit of the Atlas Car & Mfg. Co. consisted of two storage battery locomotives, one provided with combination features for operating from the trolley wire as well as the storage battery. One machine was of the high type, being 45" high; the other was 32" high over all and suitable for operation in thin seam coal.

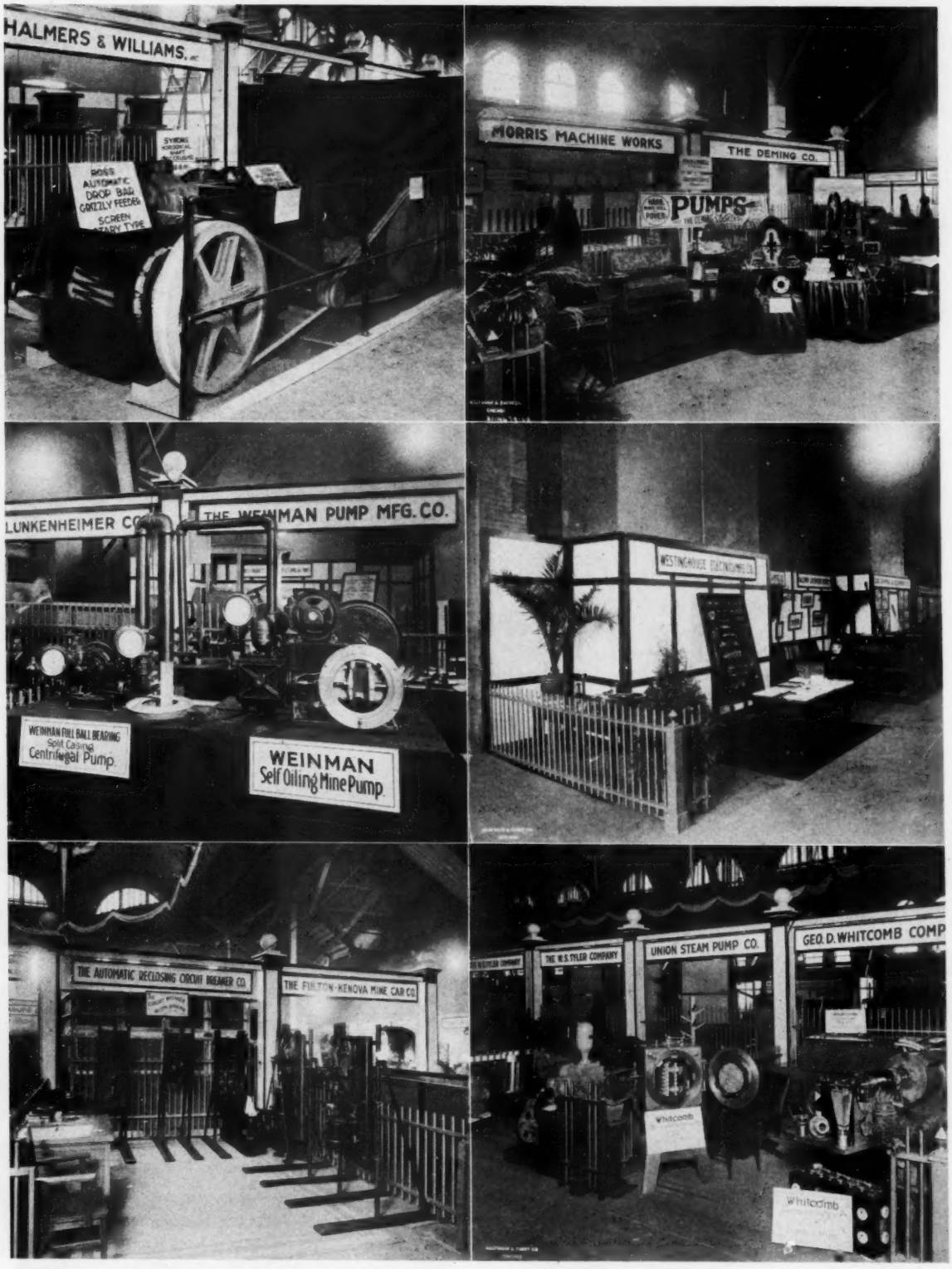
A feature of this exhibit was a driving unit from one of these locomotives, which was partly dismantled so that the actual operation could be seen. This unit was in actual operation from a single cell storage battery showing the low frictional losses involved in a drive having ball bearing mountings.

Automatic Coal Mine Equipment Company, Chicago.—This firm acts as sales agents for the Dinwiddie Steel & Manufac-





turing Company of Smithboro, Ill. Demonstrations were given in the Coliseum annex with the Dinwiddie automatic mine door by T. J. Casey, vice president and sales manager. This door always opens away from the load, and because of a hinged panel at the



bottom, cannot be blocked by coal falling on the track. A model of this door was set up on a track over which mine trains were passing.

Automatic Reclosing Circuit Breaker Co., Cleveland.—This exhibit consisted of four Automatic Reclosing Circuit Breakers, ranging in capacity from 800 to 8,000 amperes; one 5 H. P. 220 volt, type "SS" Automatic Starter; Overload Time Limit Relays and bearing thermostats. The breakers and starter were wired up so that the operating characteristics could be readily explained and demonstrated. The features of the automatic breaker that were brought out in these demonstrations were: (A) minimum loss of

power, due to breaker being open. (B) why the breaker will not reclose on short circuits. (C) practical elimination of substation attendants. The feature of type "SS" Starter was the limiting of current to full load of motor. The bearing thermostat features were its simplicity of installation and positiveness of operation.

The Bastian Blessing Company, manufacturers of the well known line of Rego welding and cutting equipment, demonstrated its apparatus at booth No. 148. Complete units for all ranges of work within the limits of the oxy-acetylene or oxy-hydrogen process were shown. The torches were operated to show the automatic perfect flame adjustments and the non-flash back feature. The ladies were particularly interested in the toy balloons given away at the booth which were filled with hydrogen gas.

Frank S. Betz, Hammond, Ind.—First aid equipment for use in mine accidents was displayed here. Specimens shown included medical supplies, sterilizers, service station equipment, hospital beds, stretchers, white enamel ware, operating room equipment, bandages, washstands, sinks, operating tables, and hospital plumbing. H. B. Bengson personally demonstrated the use of first aid equipment during the entire convention week.

The Buckeye Blower Company, Columbus, Ohio.—The exhibit consisted of a 48" Buckeye disc booster fan; a small cast iron volume blower direct connected to a 7½ H. P. self-starting Triumph Motor operated by Cutler Hammer Push Button Control; also, a large Buckeye reversible multiblade mine fan, which permits either exhaust or delivery of air, according to position of the dampers. All three of these fans were in operation and they attracted considerable attention. The booth was in charge of Wm. I. Lawson, sales manager, from the factory, and their western manager, W. J. McEvoy, with office at 324 Monadnock Block, Chicago, Ill.

Buffalo Forge Company, Buffalo.—This company makes a specialty of mine ventilation. Among the lines displayed were electric blowers, the Niagara conoidal wheel, Dyplex wheel, steel pressure blowers, disc fans, Buffalo spray nozzles to settle poisonous dust in mines, hose, steam and centrifugal pumps, slow speed fans, air washers, condensation pumps, gas and fume exhausters, reversible exhausters, blast wheels, Buff self-aligning oil ring bearings, countershafts and ventilation tubing. The Buffalo Forge ventilators were equipped with DuPont Ventubes made by the DuPont company of Wilmington. C. C. Cheyney had charge of the display booth.

Car Dumper and Equipment Company.—The feature of this exhibit was a working model of the Solidcar self-dumping cage, which is automatic in operation. Coal, placed in model cars, was carried by this dumper into a cage, which raised, dumping the coal. A mechanical spragging machine and a rotary car dumper were also exhibited. Photographs and blue prints of installations and construction of all models were on display in this booth. Arthur M. Simpson was in charge of the exhibit.

Cement-Gun Company, Cornwells Heights, Pa.—This company exhibited two air compressors, one motor driven type and gasoline, both of a portable type. The Cement-Gun has proved a very efficient aid in mines, sealing the rock from the air and moisture and preventing scaling and falls. J. M. Crom was in charge of the booth.

Chalmers & Williams.—This display featured the "Ross Automatic Drop Bar Grizzly Feeder and Screen" in the rotary and traveling types; also the "Symons Disc Crusher." Chalmers and Williams manufacture and sell these machines under exclusive patents and licenses and, in addition, a general line of modern rock crushing, screening and feeding equipment. The Ross automatic drop bar Grizzly feeders and screens were operated to show the alternating bars dropping away at the bottom, the feature which insures the screened material unimpeded passage through the drum or returning aprons and also automatically cleans the apertures, or openings, between the bars of any material that might be inclined to wedge.

H. Channon Company, Chicago.—This exhibit embraced a full line of mine equipment and supplies manufactured by various companies for which the Channon Company is agent. Included in this lay-out were power pumps, steam pumps, picks, shovels, clothes hangers, hose, jacks, fire extinguishers, miners' camps and lights, car movers and spotters, portable electric coal drills, and blacksmith shop and maintenance shop tools, repairing equipment and supplies.

Chicago Chemical Co.—The Chicago Chemical Co., 20 E. Jackson Blvd., Chicago, exhibited two of their products, viz., Colline Boiler Compound and Batrylife. Colline is a universal compound which is guaranteed to work successfully in any type of boiler with any kind of water. It removes old scale, prevents new scale from forming, prevents priming and foaming, and rust, pitting and corrosion of the boiler metal. Batrylife is an electrolyte which supplants sulphuric acid solution in lead storage batteries. It prevents destructive sulphation of batteries due to overheating, prolongs the life of the battery, will not freeze, charges more quickly, holds charge longer, and will not rot battery box or frames.

Chicago Mining Sheave & Roller Co.—An interesting exhibit was that of the Chicago Mining Sheave & Roller Co. in booth No. 138. The sheaves, used on horizontal curves, are made in several sizes, the base and roller being constructed of cast iron but the core of the strongest steel, featuring a double-bearing, oil running, frictionless type. The rollers, used on main lines, are also made in several sizes, featuring oil reservoirs, double-bearing, frictionless, heavy construction. Mr. Andrew Bandura, president of this concern, will be pleased to answer any inquiries. Address him at Chicago Mining Sheave & Roller Co., 2320 Chicago Ave., Chicago, Ill.

Chicago Pneumatic Tool Company, Chicago.—This company exhibited time saving electric coal drills, air drills, the Boyer riveting hammer for mine construction work, mounted and unmounted drills and a full line of power tools. F. E. Taylor was one of the company representatives at the convention.

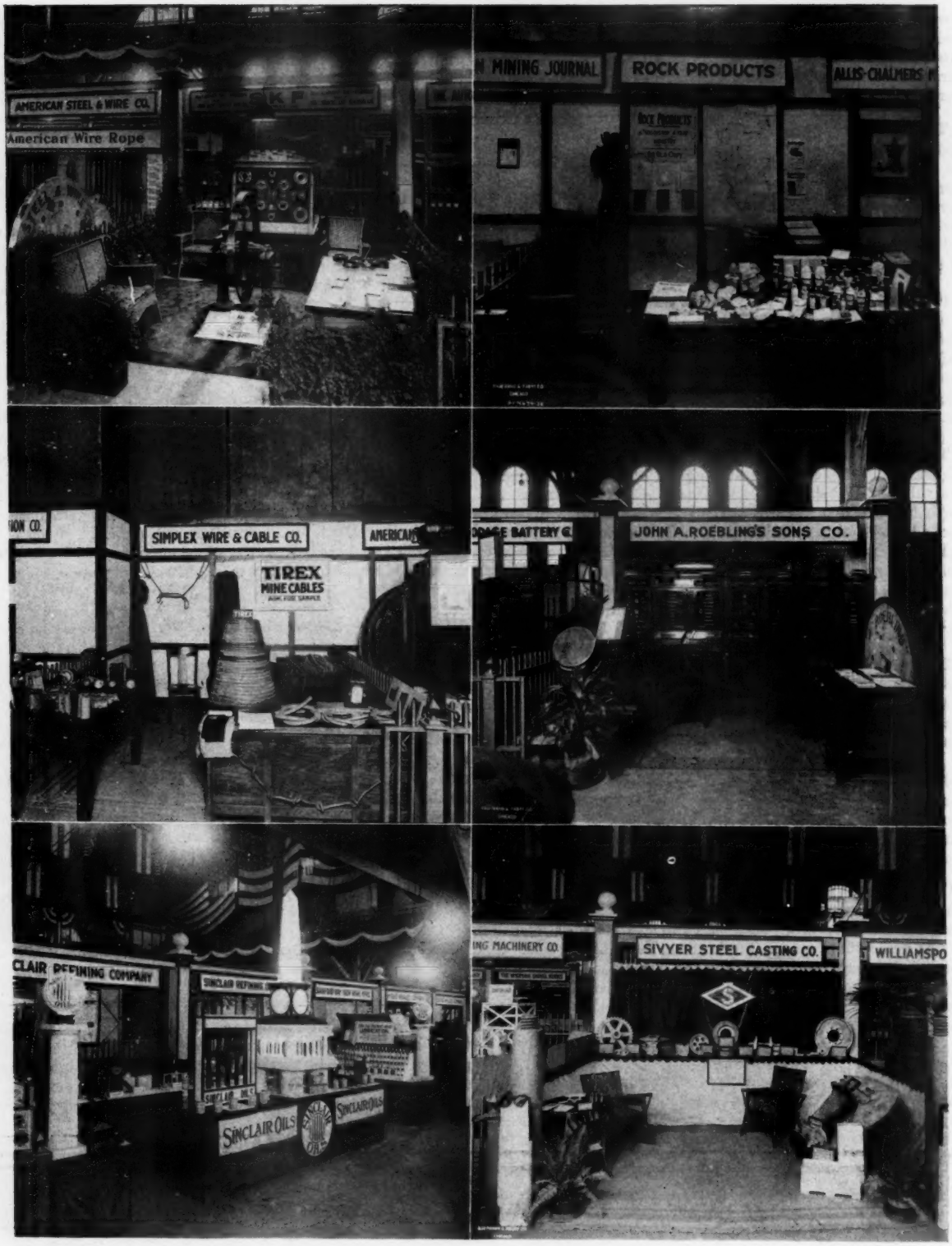
Columbian Steel Tank Company, Kansas City, Mo.—This company featured a Lightning Motor Motive hand hoist truck equipment for rapid dumping. This body and device is made without rivets and has a patent tail gate that hinges at either top or bottom. By shifting a clutch the body can be hoisted or lowered, the power for raising being supplied by the motor. This equipment is built for all sizes of trucks, from one to ten tons. Bolted tanks for storage and a line of truck and tank equipment were also contained in the exhibit. J. S. Folev was one of the company representatives with this exhibit.

Eagle Iron Works, Des Moines, Ia.—This company exhibited the Olson automatic self-dumping cage, demonstrating with a working model.

Electric Materials Company, Chicago.—This exhibit contained a "Hold Heet" space heater for heating isolated rooms and passages in mines, V. V. safety switches, cast iron water proof switches, trolley harps, rail bonds and other electrical mine equipment. The demonstration was in charge of William Finlay

Edison Storage Battery Company.—Three storage batteries rigged in a machine which bumped them together every two seconds gave visitors to the exposition a good insight into the quality of Edison storage batteries. There was also shown a full line of storage batteries of all types, and a lighted display of batteries in actual use in coal mine locomotives. Fred Jago met the visitors.

Electric Railway Improvement Company, Chicago.—This company deals in rail bonds and arc bond weldings, which were demonstrated in the booth. Erico arc weld rail bonds, Erico portable welding machines, and a complete line of equipment for this work were displayed, showing several types of machines for arc welding. Of considerable interest and attraction were the demonstrations of an operator working under a glass case welding rail



bonds, and the representatives of the company were able to show the proper way for work of this kind to be done.

Electric Service Supply Company, Chicago.—This company exhibited a full line of all types of electrical mine equipment, including overhead materials of all kinds, mine telephones and signals, locomotive headlights, turbo generators, Segur coil winding machinery, high tension insulators and fuses, Keystone triangle arms, switchboards, miners' lights, and kindred lines. H. H. Johnson was the head representative in charge of the exhibit.

Fairmont Mining Machinery Co.—In its exhibit the Fairmont Mining Machinery Co. relied largely on models for demonstrating their various types of coal mine equipment. Their power coal

augur, portable pump, box car loader and other installations were shown in this way, but the working model attracting perhaps the greatest general attention was that of their car retarder. In the Coliseum Annex, Fairmont steel ties were used exclusively in setting up the track on which was run the locomotives and mine cars manufactured by exhibitors. Fairmont complete coal mining installations were graphically shown by large panels made of up framed photographic enlargements.

Federal Electric Co.—The Federal Electric Company, 8700 South State Street, Chicago, Illinois, had in its booth No. 143, an exhibition of electrical products which proved extremely interesting. Their large double head Type B electric siren, it was explained, is used by big coal companies such as the Peabody Coal Company, as a starting and stopping, and as a general arlam, signal. The small Type A Federal electric siren is used in conjunction with breakers and as an emergency alarm, and in the small mines, as a starting and stopping signal. Other items on display were the National Multiphase time-limit renewable fuse and the Federal electric lantern with new rechargeable dry battery.

The Fibre Pipe Co.—Bermico Fibre Pipe, displayed for the first time before the Mining Congress at the Coliseum in Chicago, has many qualities that make it suitable for mining work. It is put together like iron pipe, being threaded, with screw couplings, and will stand the same abuse. There is no contraction or expansion, it will not rust or corrode, handles acids, stands high pressures, is a wonderful insulator and weighs about one-third as much as iron pipe. It is also moisture proof. This pipe is being put on the market by the Fibre Pipe Company, 421 Board of Trade, Indianapolis, Ind., and is furnished in sizes from 3 to 12 inch, inclusive, smaller sizes following later.

The Flexible Steel Lacing Company of Chicago exhibit, in charge of their sales manager, H. L. Coats, showed their well known Flexco-Lok lamp guards, Alligator steel belt lacing and their High Duty fasteners. The latter are especially designed for use on heavy conveyer belting and, though tested in field service for several years, the samples of this joint in belting from six up to fourteen ply attracted much attention, as it presented features new to many engineers. To those who did not register for a copy of their hand book, "Short Cuts to Power Transmission," a copy will be sent on request.

Fulton-Kenova Mine Car Company, Fulton Canal, Ohio, and Kenova, W. Va.—This was one of the largest exhibits at the Coliseum. Two cars, one a five-ton mine car of wooden construction, and the other a two-ton steel car, were shown. Likewise all kinds of hitchings, couplers and bumpers and mine car equipment. The dump mechanism of the two types of cars were explained by W. H. Taylor and other representatives of the company.

General Electric Company, Schenectady, N. Y.—This company had a large exhibit of pictures of its equipment in electrical machinery, locomotives, hoists, generating equipment and other lines of mine machinery. G. E. Marble was in charge of the booth.

Goodman Manufacturing Co.—Models of modern electric mine locomotives were shown at the Goodman exhibit. The locomotive which attracted much attention was equipped with transverse equalizers. Severe obstructions and depressions were placed on the track and because of the action of the equalizer the locomotive traveled along as though the track were level. Enlarged operating views of locomotives and mining machines were also shown. The Goodman factory, located in Chicago, held an "open house" and welcomed many delegates and guests of the Mining Congress. The visitors saw mining machinery in various stages of construction and also witnessed the operation of improved machines and locomotives.

Gould Storage Battery Company, Chicago.—Various types of cells and batteries were exhibited by the Gould Storage Battery Company. Rubberized separators, a compound of wood impregnated with rubber, which renders the separators acid resisting, were featured. There were also shown storage batteries designed for American submarines. M. E. Pipkin was the company representative at the exposition.

Hazard Manufacturing Company, Wilkes-Barre, Pa.—This company had on display samples of all sizes and strength of wire rope and insulated wire of every type which is manufactured by it. The various materials used in the construction of each product also constituted a part of the exhibit, giving it an educational tone. W. S. Hart was the company representative at the booth.

Hercules Powder Company, Wilmington, Del.—Explosives of all types for mine blasting were on exhibit, including dynamite, blasting powder, caps, electric blasting, fuses, squibs, electric squibs, tamping bag and flotation oils that are by-products of the explosive industry. The raw materials used in the manufacture of the various kinds of explosives were displayed, which gave an educational note to the display. Enlarged photographs of big blasting operations in various kinds of coal mining were shown. N. S. Greensfelder had charge of the display.

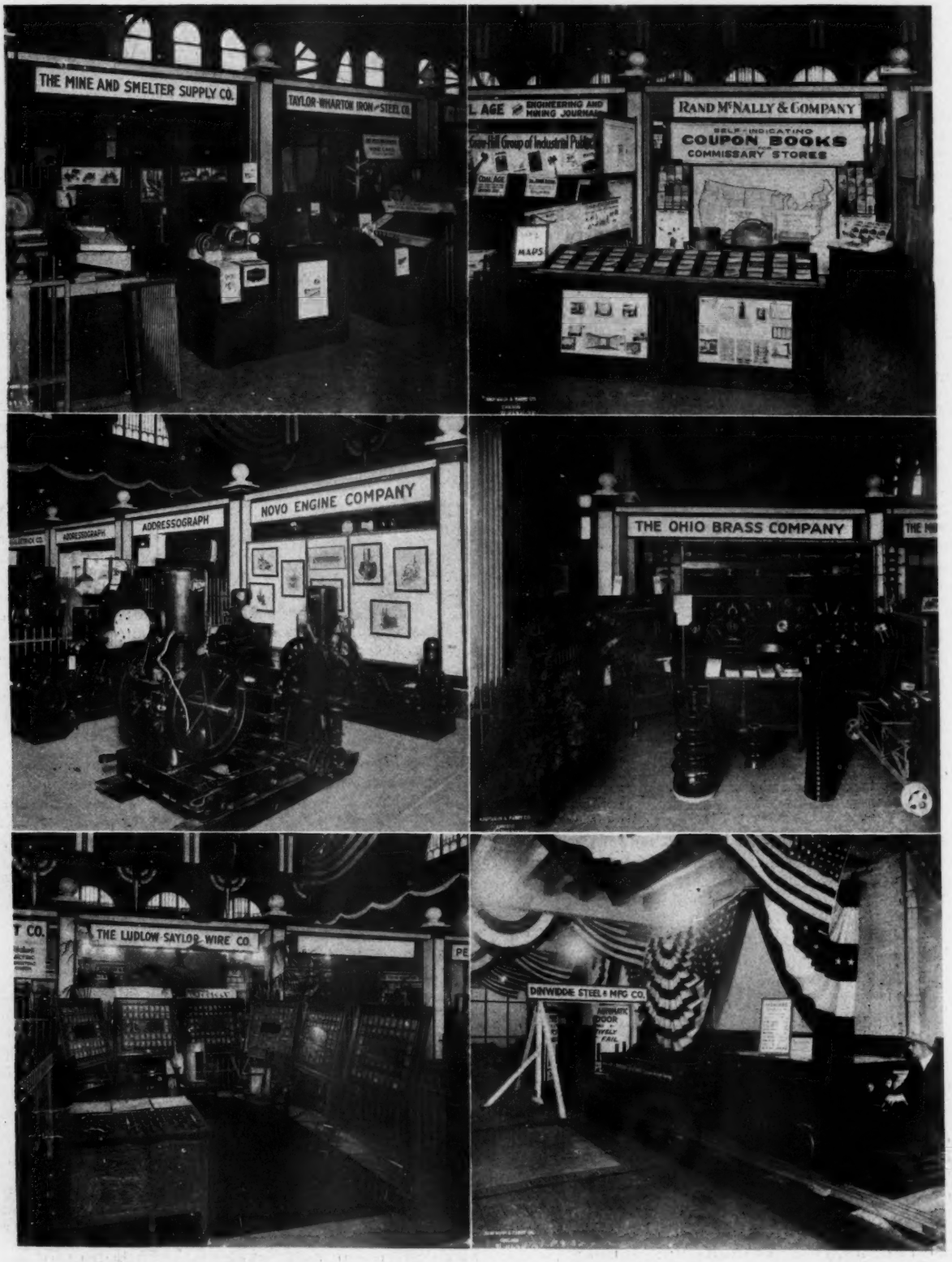
Hockensmith Wheel & Mine Car Company, Penn Station, Pa.—The feature of this exhibit was a mine car on the track equipped with Hyatt roller bearing wheels, mounted with a single angle bar construction. This car was also equipped with a Eureka oiling device. There was also exhibited a double angle bar truck mounted on a section of a wood car bottom. C. L. Herbster represented the company at the exposition.

Robert Holmes and Brothers, Danville, Ill.—A full line of mine machinery was exhibited by this company. One of the features was a working model of the Helical adjustable end loader for filling cars from the mine tipple. Another working model in the display was of an automatic car lift operated by compressed air. A supersheave wheel measuring 7 feet in diameter with the lighter, a Danville hoisting engine, post-type brakes, bored guides and crossband, all kinds of sheave wheels, mine cages, screens, chutes, hoppers and feeders were included in the exhibit. F. R. Holmes was in charge of the booth display.

Hudson Coal Company.—The costliest exhibit in the Coliseum was that of the Hudson Coal Company of Scranton, Pa. It consisted of a full working model of a Loree No. 5 breaker such as is in operation in the company's mines. The cost of this exhibit was $5,000. Among those in attendance at the booth during the entire exposition were D. F. Williams, vice president and general sales agent of the Hudson Coal Company, and the designer and carpenters who built the model. The original breaker stands 140 feet or approximately 10 stories in height. It contains four sets of crushing rolls, 60 decks of shakers containing 5,400 square feet of screening surface and 44 jigs. Approximately 2,700 mine cars containing 2½ tons of coal is dumped at the colliery daily, and the Loree breaker performs every manufacturing function from separating the coal from the rock to discharging the coal of various sizes into the railway cars. This company also exhibited a miniature reproduction of the anthracite coal fields beneath the surface, showing just how the coal had been taken out and the character of supports which are left. This was done for the purpose of explaining why the surface in the anthracite coal regions sometimes sinks. Thousands of people studied this exhibit during the week.

The Hyatt Roller Bearing Company, New York City, had a very instructive display of bearings suitable for use on mine cars, belt conveyors, storage battery and trolley locomotives, line shafting and numerous other uses. Two complete Hyatt equipped conveyor stands of the troughing type with return idlers were on display. H. K. Porter was in charge of the exhibit, other Hyatt men in attendance being D. Gleisen, manager, Industrial Bearings Division; V. C. Genn, conveyor bearing expert; J. E. Graham and L. A. Shea of the Mine Car Department.

Ironton Engine Company, Ironton, Ohio.—Storage batteries for use in mine locomotives, switchboards, rheostat charging ma-



chines, and Ironton duplex combination mine locomotives were shown. Pictures of Ironton installations were included in the exhibit. The storage battery locomotive was in actual use during the exposition. C. W. Chappelle was the representative.

Jacobsen & Schraeder and the Krehbiel Company, Chicago. —These two companies had adjoining spaces, and showed a complete line of all types of mining machinery, including, in addition to blowers and ventilators, coal tipples and handling plants, screening and storage plants, elevating and conveying plants, coal docks and screens. A small working model of a table screen was part of the exhibit. A large number of enlarged pictures showing Krehbiel and Jacobsen and Schraeder installations completed the display.

J. D. Brendel was in charge of the exhibit. The Ilg Ventilating Company also exhibited here the Ilg unjversal high pressure blower, and a complete line of blowers and ventilators for mines. All of these lines are used with tubing to supply air to remote entries.

Jeffrey Manufacturing Company, Columbus, Ohio.—This company exhibited a complete line of coal mining machinery, consisting of electric and compressed air cutting machines, electric locomotives, mine fans, retarding conveyors, crushers, pulverizers, shredders, car-unloaders, elevating and conveying machinery, wagon conveying loader, drop forge and heat treated parts for all machinery, tipples, hot pressed armature coils and other lines. The booth contained photographs on installations of all of these lines, and literature and booklets of the company were among the most attractive and artistic distributed at the convention. C. E. Fetherolf was the company representative.

W. A. Jones Foundry & Machinery Company, Chicago.—All styles of speed reducers, spur gear countershafts of all styles, friction clutches, worm gear reducers of various kinds, cut gears of all kinds, and a full line of mine shaft equipment and power transmission machinery were exhibited by this manufacturer. J. W. Hildebrand was among the representatives who was assigned to demonstrate the work at the Coliseum.

Keystone Consolidated Publishing Company, Pittsburgh. R. C. Becker, vice president of this company, was among the representatives of the Keystone Company who attended the convention. Mr. Becker was a member of the entertainment committee of the convention, and through his work the rousing smoker on Wednesday evening was made possible. The company had in its booth copies of its three last editions of its publications, The Coal Catalogue, The Mining Catalogue, Coal Edition, and The Mining Catalogue, Metal Edition. In the mining field, these books are quoted as standard authorities.

Keystone Lubricating Co.—The exhibit consisted of a mechanically operated display illustrating the various ways and means of applying Keystone grease to machinery bearings. Included in the exhibit were specimen bearings of the Hyatt Roller Bearing type, the S. K. F. Ball Bearing type, the Timken Roller Bearing type and the solid roller bearing type, and other exhibits illustrating the successful methods of the Keystone grease system of lubrication. These exhibits are inclusive of the general class of machinery on which the Keystone Lubricating Company guarantees a reduction of 10 percent in the cost of lubrication where the Keystone method is employed.

Kilbourne & Jacobs Manufacturing Company, Columbus, Ohio.—This company, by use of large colored photographs, exhibited its full line of mine cars of all types, steel and wood, automatic dump.

Lake Superior Loader Company, Duluth, Minnesota.—Demonstrations were given by this company with their "Shuveloder", set up on a track. This machine does mechanical mucking and is used for underground work in coal mines in tunneling and mucking blasted coal. It is air-operated and can be run by one man, with a maximum continuous operation record of 45 tons an hour. Pictures were also exhibited showing the various types of mucking work done by the "Shuveloder." F. N. Wilson demonstrated the machine.

A. Leschen & Sons Rope Company.—This company had on display operating models of two distinct types of their aerial tramways. One model was a reproduction of an actual Leschen tramway installation in West Virginia, used for carrying coal from mountain-side mine to railroad across a river. It is known as their Single Span Gravity Two-Bucket System. The other model represented in a general way the Leschen automatic system, and this model was made to show particularly the automatic loading and dumping devices rather than a complete installation, as oftentimes this system is used for long hauls. There were also samples of Leschen wire rope for all mining work, including Hercules (Red-Strand) wire rope, patent flattened strand wire rope, locked coil cable, and ropes of standard round strand construction. A. Leschen & Sons Rope Co. reports that many live inquiries for their products were originated by their exhibit.

The Lima Locomotive Works, Lima, Ohio.—This company's exhibit consisted of a set of framed photographs displaying fully the Lima steam locomotives, which are used for all types of industrial operations. All Lima engines are Shay-geared locomotives and are built for heavy work over steep grades and on temporary track. The four-wheel drive type with the gearing direct from the cylinders is the popular type for coal companies. They are built for all gauges of track and in sizes from 10 to 150 tons. S. W. Baker was among the representatives of the company at the Convention.

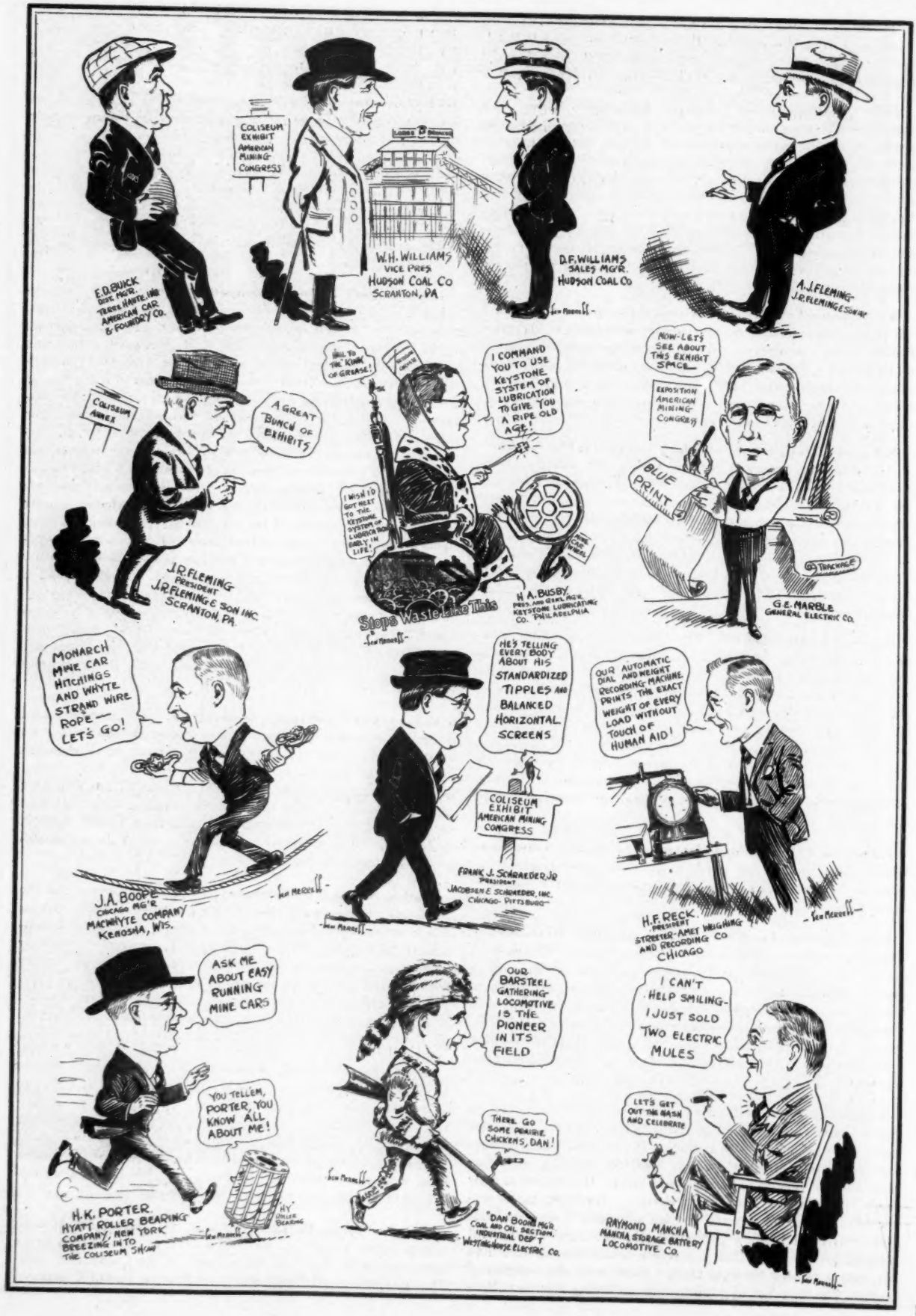
Lincoln Steel & Forge Company.—The company was represented at the exposition and convention by Frank S. Barks, president; Geo. B. Bell, Jr., vice president; A. P. Fox, chief engineer; H. W. Richards, sales manager, and P. H. McGauley, advertising manager. Its principal exhibit was, of course, the Lincoln Self-Aligning Journal Box Truck. A display was made of a 2½ ton car truck so arranged to show the ease with which same could be dismantled—that is, the wheel taken off and bearings removed for inspection. They also displayed a 6 ton truck of center sill construction and equipped with the new Lincoln Safety Coupler on one end and with rotary dump head on the other end. This was the first showing of this Lincoln Coupler. This is so designed that the link is held on a level, that is, the link will engage the female coupler regardless of the position of the car thereby eliminating the most frequent cause of accidents in coal mines. Twenty-five to thirty-five percent of the accidents in a mine are caused in coupling cars. This coupler received a good deal of attention and favorable comment and many requests were received to supply operators with literature and detailed information. Another feature of the company's exhibit space was a large drawing of the well known Lincoln Truck trade mark showing the detail of the Lincoln Self-Aligning Journal Box principle in a diamond with the caption "The Roller Bearing Properly Placed."

E. J. Longwear Company, Minneapolis.—The patent diamond drilling bit that cuts the core in halves or quarters was the feature of this exhibit, and with this machine a much more thorough analysis of the core can be made. Shaft sinking models, vertical and incline models, head frames, cages, shafts, shaft sinking machinery, drills for shaft, diamond drills, and all styles and lines of kindred equipment were exhibited in addition to the diamond drilling bit. R. R. Longyear, geologist, was one of the representatives giving the demonstration.

Ludlow Saylor Wire Company.—This exhibit was one of the outstanding features on the floor, showing "Perfect" double crimped wire cloth and Rek Tang rolled slot screen. This display demonstrated the famous "Perfect" double crimp construction, together with the matchless precision of weave, which marks all Ludlow Saylor products, from the heaviest space cloth made of steel bars down through every variety of weave to the finest meshes. Crowds of mining men dropped in to see the exhibit, and to visit with E. M. West of Salt Lake City, and J. E. Robertson of El Paso.

MacWhyte Company, Kenosha, Wis.—Monarch mine car hitchings, and a safety hook to prevent the hoist drum at the top of the mine shaft from overwinding were shown in the line of exhibits of this company. There was also displayed a reel hoisting rope, and two cabinets filled with all sizes, styles and strengths of wire rope. A large oil painting of the MacWhyte plant at Kenosha hung over the entrance to the booth. L. W. Bushnell demonstrated the various types of wire rope on display.

Mancha Storage Battery Company, St. Louis.—Two Mancha storage battery mine locomotives on a track in the Coliseum annex were running all day long during most of the Convention week. The locomotives exhibited were the Mancha Hercules, armored


E.D. BUCK
DIST. MGR.
TERRE HAUTE IND
AMERICAN CAR & FOUNDRY CO.
COLISEUM EXHIBIT AMERICAN MINING CONGRESS
W.H. WILLIAMS
VICE PRES
HUDSON COAL CO
SCRANTON, PA
D.F. WILLIAMS
SALES MG'R.
HUDSON COAL CO
A.J. FLEMING
J.R. FLEMING & SON INC
COLISEUM ANNEX
A GREAT BUNCH OF EXHIBITS
J.R. FLEMING
PRESIDENT
J.R. FLEMING & SON INC.
SCRANTON, PA.
HAUL TO THE KINK OF GREASE!
I COMMAND YOU TO USE KEYSTONE SYSTEM OF LUBRICATION TO GIVE YOU A RIPE OLD AGE!
I WISH I'D GOT HEAT TO THE KEYSTONE SYSTEM OF LUBRICATION EARLY IN LIFE!
Stops Waste Like This
H.A. BUSBY
PRES. AND GEN'L MAG'R.
KEYSTONE LUBRICATING CO.
PHILADELPHIA
NOW-LET'S SEE ABOUT THIS EXHIBIT SPACE—
EXPOSITION AMERICAN MINING CONGRESS
BLUE PRINT
TRACINGS
G.E. MARBLE
GENERAL ELECTRIC CO.
MONARCH MINE CAR HITCHINGS AND WHYTE STRAND WIRE ROPE— LET'S GO!
J.A. BOOPE
CHICAGO MG'R
MACWHYTE COMPANY
KENOSHA, WIS.
HE'S TELLING EVERY BODY ABOUT HIS STANDARDIZED TIPPLES AND BALANCED HORIZONTAL SCREENS
COLISEUM EXHIBIT AMERICAN MINING CONGRESS
FRANK J. SCHRAEDER JR
PRESIDENT
JACOBSEN & SCHRAEDER, INC.
CHICAGO- PITTSBURG
OUR AUTOMATIC DIAL AND WEIGHT RECORDING MACHINE PRINTS THE EXACT WEIGHT OF EVERY LOAD WITHOUT TOUCH OF HUMAN AID!
H.F. RECK
PRESIDENT
STREETER-AMET WEIGHING AND RECORDING CO
CHICAGO
ASK ME ABOUT EASY RUNNING MINE CARS
YOU TELLEM, PORTER, YOU KNOW ALL ABOUT ME!
H.K. PORTER
HYATT ROLLER BEARING COMPANY, NEW YORK
BREEZING IN TO THE COLISEUM SHOW
HY ROLLER BEARING
OUR BARSTEEL GATHERING LOCOMOTIVE IS THE PIONEER IN ITS FIELD
THERE GO SOME PRAIRIE CHICKENS, DAN!
"DAN" BOONE MG'R
COAL AND OIL SECTION
INDUSTRIAL DEP'T
WESTINGHOUSE ELECTRIC CO.
I CAN'T HELP SMILING- I JUST SOLD TWO ELECTRIC MULES
LET'S GET OUT THE HASH AND CELEBRATE
RAYMOND MANCHA
MANCHA STORAGE BATTERY LOCOMOTIVE CO.

tank and standard gathering type. These locomotives were used running over switches and through mine doors, and made couplings with cars while on the track. This company also exhibited a line of water stills and rheostats. W. F. Exner, secretary of the company, had charge of the exhibit.

Mine & Smelter Supply Company, Denver.—Patented Marcy ball and roller mills, Wifley concentrated and coal washing tables, with a running model of this type on display, Heusser balancers with a metal mechanical balance, and the McCool pulverizer were shown in this booth. C. G. Willard demonstrated these lines at the exhibit.

Mine Safety Appliances Company, Pittsburgh.—Edison electric cap lamps, Gibbs oxygen breathing apparatus, M. S. A. oxygen inhalator, carbon monoxide masks, carbon monoxide indicators, Methane indicator, and other safety appliances were shown. The company's full line was represented. I. A. Palmer was in charge of the exhibit.

Mining Safety Device Company, Bowerston, O.—This company exhibited a Nolan system automatic loader of mine cages by gravity. This automatic mechanism unloads each car from the cage at the bottom of the shaft and takes another car onto the cage. This labor-saving device is operated without power, gravity accomplishing the entire automatic operation. A miniature working model was used as a demonstrator to show the operation of the mechanism. J. A. Nolan, the inventor of the system, was the company representative in charge.

Morgan Gardner Electric Company, Chicago.—This company displayed its line of machinery by a series of large photographs. Top cutting machines, two speed shortwall mine machines, tailrope shortwall mine machines, five, six, and eight ton locomotives, alternating and direct current breast machines, and all type of coal cutting machinery are sold by this company. E. O. Wiederanders was the company representative in charge of this booth.

Myers-Whaley Company, Knoxville, Tenn.—In this exhibit a full size and fully equipped coal shovel was used in demonstrations such as mucking in tunnel excavation or loading mine cars underground. The machine is equipped with a scoop which drops the coal by an automatic dump onto an endless conveyor, which loads the cars. Half ton chunks can be loaded with this machine, and it attracted quite a bit of attention on account of being the largest piece of actual machinery in the Coliseum. Charles C. Whaley, sales manager of the company, gave the demonstrations with the shovel, which was kept moving on its track in the operation.

Norberg Manufacturing Company of Milwaukee.—A large exhibit was made by this company of mine hoists and mine machinery.

Novo Engine Company.—This exhibit was in charge of George C. Schaffer, southwestern district manager, and Byron C. Patten of the Chicago office, 800 Old Colony Building. The exhibit showed some of the many varieties of hoisting and pumping outfits which the Novo Engine Company manufacture. These pumping outfits and hoists are equipped with gasoline and kerosene engines or with electric power. C. E. Bement, vice president and general manager of the Novo Engine Company; E. J. Bement, treasurer and sales manager; and G. H. Holmes, chief engineer, also attended the American Mining Congress Convention and Exposition. Novo Engine Company would be pleased to send their new No. 921 catalog to any of the readers of the Mining Congress Journal who may be interested in their equipment.

The Ohio Brass Company, of Mansfield, Ohio, had a stretch of trolley wire at its booth on which was installed such O-B material as clamps, hangers, frogs, section insulators, dead end clamp and insulated turnbuckle. Samples were also on display of other O-B supplies for electric haulage, such as rail bonds, welding machines of both the resistance and dynamometer types, Imperial headlights, feeder wire insulators, etc. A few high tension porcelain insulators were also exhibited of the class that is used in all classes of transmission and distribution service.

Ottumwa Box Car Loader, Ottumwa, Iowa.—A moving picture projection in the booth exhibited the line of patent loading and unloading of this company. There are 10 different types of unloaders, all of either steam or electric power, including the electric portable unloader, car switcher, rubber belt conveyor type, steel belt type, pusher model, gravity unloading cradle type and the self dumping cage. H. A. Phillips was one of the representatives giving this demonstration.

Ottumwa Iron Works, Ottumwa, Iowa.—Roller bearing trucks for mine cars and electric and steam mine hoists were exhibited, and enlarged photographs artistically framed showed Ottumwa installations of equipment and models of machinery types. Models of an Ottumwa mine car wheel were shown, also the parts cut in cross section to show the type of construction. H. R. Brill and others in attendance at the exhibit assembled the parts of wheels to demonstrate the functions of each part.

Peabody Coal Co.—One of the most interesting and attractive exhibits was that of the Peabody Coal Co. A large lump of Shellbark coal weighing considerably over ten tons, was the outstanding feature and naturally created great interest. The company's very extensive operations in the coal fields were shown by moving picture projections. A series of enlarged photographs of the various mines of the company added considerably to the value of the exhibit.

Railway Mine Supply Company, Kincaid, Ill.—Included in a full line of its mine car line of equipment shown by the Railway Mine Supply Company, were two types of mine cars which were kept in full operation on their own tracks in the Coliseum annex. Wheel parts and Ramsco roller bearing wheels were in the booth exhibit. John J. Gaffney was the company representatives.

Roberts and Schaefer Company.—The exhibit of Roberts and Schaefer Company, of Chicago, Illinois, specialists in the designing and building of coal mining and coal washing plants, consisted of working models of the Marcus horizontal screen and picking table, and the Balanced Marcus horizontal screen and picking table as applied to coal preparation. It consisted also of a model of the new Roberts and Schaefer mine skip. These models attracted a large amount of attention owing to the success of the many actual installations at coal mines throughout the entire United States and Canada. Many beautifully framed photographs of plants designed and built by this company graced the exhibit.

John A. Roebling's Sons & Company, Trenton, N. J.—Wire ropes and cables were exhibited, including a full line of all wire rope types, insulated wire, safety slings, erection work, construction wire rope and cables. Included in the exhibit was a section of the cable used in constructing Brooklyn Bridge. W. H. Slinghuff was in attendance.

St. Louis Structural Steel Company, St. Louis.—A complete line of coal mine cars and car equipment were displayed in this exhibit. Two mine cars were shown, one of wood and one composite car of wood and steel. These cars were running on a track for exhibition purposes, and are almost identical to railway cars in equipment. In addition to the mine cars, there was a display of brass bearing self-aligning journal box trucks, spring draw-bars, bumpers and couplings for mine cars, wheels, wheel parts and gears. T. A. Parker was in charge of this exhibit.

Sanford-Day Iron Works Company, Knoxville, Tenn.—This exhibit attracted a vast amount of attention, being a model on the exact scale of a mine with a miniature electric train dumping coal into the tipple by use of the model cars manufactured by this company. Whitney roller bearing trucks, car parts, model cars, wheels, and parts were included in this exhibit. President Hugh M. Sanford was in charge of the booth.

Service Motor Truck Company, Wabash, Ind.—This company exhibited a three and one-half ton truck with a dump body and hydraulic hoist.


GEO. W. AULMANN, VICE PRES. EAGLE IRON WORKS COAL MINE EQUIPMENT DES MOINES, IOWA
TO GOODMAN MANUFACTURING COMPANY PLANT
COLISEUM
A. H. BENEDICT GOODMAN MFG CO. CHICAGO.
THEY SAID WE COULDN'T DRIVE LOCOMOTIVES— BUT WE'RE SURE SHOWING THEM!
WHITCOMB'S WORM DRIVE
W. C. WHITCOMB, PRESIDENT GEORGE D. WHITCOMB CO. ROCHELLE, ILL.
I'M NOT RIDING MANCHA'S ELECTRIC MULE— BUT WILL BE GLAD TO SHOW YOU THE REAL ARTICLE AT THE NEXT SHOW
F. A. W. LEWIN MANCHA STORAGE BATTERY LOCOMOTIVE COMPANY
THIS ISN'T A PITTSBURG STOGIE— IT'S A WILLIAMSPORT WIRE ROPE
M. E. MAGGART, DIRECTOR OF ADVERTISING WILLIAMSPORT WIRE ROPE CO. WILLIAMSPORT, PA.
THE MYERS WHALEY METHOD DRIVES OUT THE OLD HAND SHOVEL
I SEE MY FINISH!
WM. WHALEY GEN'L MG'R MYERS & WHALEY KNOXVILLE, TENN.
TAKE IT FROM ME— OUR C-M MINE SPLICER IS STRONGER THAN THE WIRE
J. C. WILSON, MG'R MINING MATERIAL SALES OHIO BRASS CO MANSFIELD, O.
HOW DO YOU FIND BUSINESS?
BY GOING AFTER IT!
OUR HOLMES HELICAL ADJUSTABLE END LOADER SHOOTS THE COAL OUT SMOOTH AS A WHISTLE!
F. R. HOLMES SEC'Y AND SALES MG'R. ROBT HOLMES & BROS. DANVILLE, ILL.
KENOVA MINE CARS BUILT TO LAST
YOU TELLEM TAYLOR
W. H. TAYLOR, PRES. THE KENOVA MINE CAR COMPANY KENOVA, WEST VIRGINIA
AUTOMATIC DROP BOTTOM MINE CAR— EVENTUALLY, WHY NOT SOONER!
HE SAID A CAR FULL!
DON'T FORGET WHITNEY MINDER TRUCKS— I MAKE THEM.
H. W. SANFORD SANFORD-DAY IRON WORKS KNOXVILLE, TENN
THE ROLLER BEARINGS PROPERLY PLACED MAKES EASY RIDING!
H. W. RICHARDS SALES MG'R LINCOLN STEEL & FORGE CO ST. LOUIS
MINE EQUIPMENT
SIMPLEX SAFETY MINE JACKS— THAT'S ALL!
L. E. ALLEN, VICE PRES. TEMPLETON, KENLY & CO. LTD CHICAGO.

Siebe, Gorman & Company, Chicago.—This company exhibited all kinds of safety appliances. Proto oxygen breathing apparatus and Antijoys breathing apparatus were shown. Safety masks of all kinds, the Kata-Thermometer, and animal air testers are included in the full line of safety appliances. The bird and animal boxes are used in mines where non-odorous gas exists. These were air-proof boxes which can be placed where bad air is suspected. When opened, the air of the outside rushes in, and then if closed again, a sample is easily procured. J. A. Ackerman was in charge of the exhibit.

Sinclair Refining Co.—Exhibit consisted of the process of petroleum from the drilling of the well to the consumer at the service station, a complete scale model with machinery, tank cars, oil derrick all in operation. The large center piece was made of paraffin wax, and the plinth of the column of petroleum coke. Various grades of lubricating oils were shown at the end of booth. This exhibit together with the motion picture of Sinclair oil activities in Mexico demonstrated once more to the technical and operating man what is behind "Sinclair Service."

Sivyer Steel Casting Company.—The display emphasized the extending growth of the use of electric furnace steel in the manufacture of mining machinery. The exhibit consisted of a display of electric furnace steel gears, pinions, sprockets, mine car wheels, coal cutters, shovel castings and various other castings used in this line including various alloys, such as vanadium, nickel and chrome. By the use of the electric furnace, the Sivyer steel casting company has developed a steel that is strong, tough, sound with exceptional anti-crystallization and wear-resisting properties.

"S. K. F." Industries, Inc., New York City.—A wheel revolving on bearings which kept turning of its own momentum for six hours, thereby affording a good demonstration of its frictionless action, attracted considerable attention at this booth throughout the week. Self-aligning radial bearings and thrust bearings of all types and sizes and in various stages of construction were shown. R. C. Byler was in charge.

Southern Wheel Company.—The exhibit of this company's mine car department included all the details necessary for the proper display of their hollow axle truck. The Hollow Axle Truck is a combination of a plain bore or bronze bushed wheel with a hollow axle, which, due to the material used, is much lighter yet stronger for a given load. The lubricating system provides for the introduction of oil through either end of the axle, the oil then flowing into the wheel cavity through ports in the axle. By virtue of this arrangement an oil supply of from four to six quarts of oil is carried in each pair of wheels. A chilled thrust bearing on the hub, and an exposed linch-pin wheel fastening complete the general scheme of the running gear proper. With this gear is ordinarily furnished a ¼" steel plate designed to keep the truck permanently squared with the car body. This exhibit was arranged by and in charge of Walter C. Doering, Vice President of the Southern Wheel Company.

Standard Oil Company of Indiana.—In Spaces 57 and 57 the Standard Oil Company of Indiana displayed a complete line of oils and greases prepared for mining machinery. The list included gasolines, greases for mining air tools, cylinder oils for steam and low pressure drills; engine, transformer and turbine oils, and other Standard products for use in mines and on mine equipment.

The Streeter-Amet Weighing and Recording Company, of Chicago, presented an exhibit demonstrating advantages possessed by the Streeter-Amet mine tipple automatic weight recording attachment.

The attachment prints the weight automatically on a paper tape and entirely removes the human element from the weighing operation, thereby eliminating carlessness and dishonesty.

Sullivan Machinery Company.—This firm, represented by Joseph H. Brown, Chicago district sales manager, exhibited in Booth 67 one of its largest size Diamond core drills, class "P", capacity, 5,500 feet; its new coal mining machine cutter bit sharpener, and a varied display of Sullivan rotator hammer drills, Sullivan water jet stopers, water drifting drills on column mountings, also photographs of coal mining machinery. In the Annex, a Sullivan "WK-26" portable motor driven mine car type air compressor was in operation to supply air for the Shuveloder exhibit next door, and the Sullivan turbinair portable mine column hoist, capacity 2,000 pounds, vertical lift, was also operated from the compressor, hoisting a 600 pound weight for exhibition purposes.

Taylor-Wharton Iron and Steel Company, High Bridge, N. J.—Prepared steel friction parts for mine machinery was shown by the Taylor-Wharton Iron and Steel Company. Included in the exhibit were samples from full lines in manganese steel castings for grinding mills, gears, pinions, Panama and reversible teeth, conveyor parts, mine and skip car wheels, chain sprockets, steam shovel parts, coke handling machinery parts, and crusher and pulverizing friction parts. H. F. McDermott was in charge.

Templeton, Kenly & Company, Chicago.—This company displayed jacks of all kinds for mine work and shoring. There was also included in this exhibit a full line of mine jacks for coal cutting machine, motor hoisting, re-railing, mine locomotives, track jacks, and car spotters. The Templeton-Kenly jacks are distinctive in the jack trade because they are made without rivets. The exhibit was arranged to demonstrate safety, efficiency and economy. L. E. Allen was one of the company representatives present.

Thomas Elevator Company.—Designers and manufacturers of hoisting machinery. Their exhibit consisted of two band friction single drum slope hoists, one with fifty horse-power and one with 100 horse-power and a 5 horse-power room hoist. These hoists were operated under power and formed a very interesting exhibit. Messrs. Moore, Boldebuck, Block and Twyman were in attendance at the booth.

Timken Roller Bearing Co.—The Timken booth was one of the real features of the exhibit. Mine car axles built by two prominent mine car manufacturers and equipped with Timken Bearings stood at the entrance of the booth and played no small part in making it a drawing card. The exhibit was under the general supervision of George C. McMullen, manager of the industrial bearings division, who with E. R. Phillips, Boyd Keifer, E. W. Austin, A. Dorfmueller, J. W. Weir, division sales engineers, looked after the visitors. These Timken representatives were kept busy from the opening of the Exposition hall in the morning until closing time late each evening, explaining the many points of advantage of Timken bearings to mine car manufacturers and operators who thronged this booth.

Tool Steel Gear & Pinion Co.—The Tool Steel Gear & Pinion Company, Cincinnati, Ohio, had an exhibit showing various samples of mining locomotive and machine gears which they can furnish as repair parts for practically all types of mining equipment. Their gears are hardened and toughened so that they will outwear from five to eight of the ordinary untreated steel pinions and will outwear at least two of the specials that are now being marketed. Samples were available showing the peculiarities of the hardening process that they use, also numerous gears and pinions that had been in service and made extraordinary records for long life.

W. S. Tyler Company, Cleveland.—Hum-mer electric screens, made in all sizes, Ro-top testing screen, shakers for making screen analysis, woven wire screens, vibrating screens, which can be adjusted to the size of coal desired to be screened and other lines were on exhibit in this company's booth. J. H. Jackson was one of the company representatives present.

Union Steam Pump Company, Battle Creek, Mich.—A good representation of the company's line of steam and electric driven pumps for ordinary mining service was displayed. The efforts of the company are devoted to the building of simplex, duplex and triplex pumps and to condensors, centrifugal pumps and air compressors. In addition to showing many types and varieties, the company supplemented its mechanical exhibit with drawings, photographs and literature of convenient form.



Welch Safety Hoist, by C. R. Welch, Denver.—Mr. Welch exhibited his gravity hoisting engine controller, which prevents overwinding. A signal is flashed by the device to the engineer to slow up when the danger zone is reached. The hoist is operated with a controller, and is very simple of operation. This device has proved successful in coal mines and western mineral mines.

Weinman Pump Mfg. Co.—An interesting pump exhibit was shown by the Weinman Pump Mfg. Company, of Columbus, Ohio. A self-oiling mine pump in operation created a great deal of favorable comment. A pump of the same type was dismantled enabling the makers to thoroughly demonstrate the design and mechanism of this unit. The same company demonstrated and had in operation a full ball bearing horizontal split shell centrifugal pump delivering 200 gallons of water per minute against 70 foot head. The interior parts of this pump were shown in a dismantled non-operating unit.

Westinghouse Electrical and Manufacturing Company, East Pittsburgh, Pa.—This company exhibited an electric mine locomotive of the gathering type, with bears, wheels, supplies and parts exhibited separately. Mine motors of all types for power and light, line materials, controls, and a full line of electrical equipment for mines were on display. The electric locomotive was made by the Baldwin Locomotive Works in Philadelphia and outfitted with all of its electrical equipment by the Westinghouse company. B. C. Siewerth was the Westinghouse representative making the demonstrations.

Geo. D. Whitcomb Co.—The Geo. D. Whitcomb Company of

Rochelle, Illinois, located at the south end of the main hall, exhibited to many interested visitors their "Permissible" controller and motor which were especially designed to comply with Schedule Fifteen of the Bureau of Mines, which schedule regulates the use of electrical equipment in gaseous mines. They displayed also a complete storage battery locomotive arranged over mirrors in such a manner as to demonstrate their "worm drive." The exhibit was augumented by a full size cut away model of the direct worm driven axle showing its constant alignment and ease of operation.

Williamsport Wire Rope Company, Williamsport, Pa.—All sizes of wire rope were exhibited by this company, a colored electric fountain playing in the center of the booth adding attractiveness to the display. The feature of these ropes is the Telfax tape marking device to distinguish grades of rope. The tape is built into the hemp core, and any rope can be told without a laboratory test by the color of this Telfax tape, thus insuring against using the wrong strength of rope for a construction job, and preventing fraud or mistakes in delivery. M. E. Maggart was the company representative present.

Wyoming Shovel Works, Wyoming, Pa.—Demonstration of Red Edge picks and shovels were given almost continuously by this company during exposition week. The purpose was to show that the shovels could be bent and twisted without breaking. Picks and shovels of all types and sizes were shown. G. E. Geer was in charge.

ELECTRIFICATION IN DEVELOPMENT OF THE MINING INDUSTRIES

IN A PAPER upon "Future Electrification in the Development of the Mining Industries," prepared for the Mining Congress Convention by Girard B. Rosenblatt and Graham Bright, of the Westinghouse Electric & Mfg. Co., the conclusion was reached that further electrification of the mining industry will be developed along three lines: the displacement of manual labor, supplanting the present steam drive by electric power, and the development of new metallurgical processes. It was held that one of the greatest opportunities for the lowering of metallurgical costs lies in the commercial development of processes using electric power directly for the production of thermal effects and for electrolytic action. If the answer to the one question, "Does it pay," can be given definitely, then the answer to the question "How far will electric power development go in the mining industry" can also be given.

Three lines along which mine operators may devote time profitably to the study of reducing costs per ton by the proper utilization of electric power, were pointed out. The first was the proper selection of apparatus to do the work which must be done; the second was the proper scheduling of operations in order to use the power produced or generated to the best advantage; the third was the possibility of reducing the unit cost of power.

NEED OF AN INDEPENDENT AMERICAN ORGANIC CHEMICAL INDUSTRY

DR. WILLIAM JAY HALE, director of organic chemical research of the Dow Chemical Company, Midland, Mich., delivered an address during the Mining Congress convention upon the subject, "Shall We Have an Independent Organic Chemical Industry," making a plea for a greater and greater American effort to that end. Chemistry, he held, is the basis of all industries, and the chief lesson of the world war was that America must promote its present and future industries and protect itself in the next war by beginning now to develop its chemical industry. If this is not done, he held, Germany will again become paramount in peace as well as in war. As a means to attainment of the end sought, Dr. Hale favored the immediate enactment of the Fordney Tariff Bill. Along this line he said:

"Above all, we must have the Fordney Tariff Bill enacted into a law at the earliest possible moment. Many men need employment, and they find it not. Nor will they find it until the tariff is settled. Money will not seek investment until there is abundant assurance of settled industrial conditions. Listen to the prattle about the Panama tolls and anti-beer. What do these childish things amount to in comparison with the needs of our industries? 'Tis the industries that must open up means of employment. The tariff, and that alone, is the crux to the whole situation, and a sure guide of prosperity.

"Mr. Fordney has embodied in the new tariff measure the greatest and most scientific principle ever proposed in the history of American tariff,—the fixing of duties based upon American valuation. At last a tangible base is set before us and the foreign falsification of values forever eliminated. What manner of mortal man ever heard of even an approximate value to an object purchased in foreign lands? Mr. Fordney brushes aside the dust of countless years of forgery as practiced by importers,—the un-American agents of Hades, and opens the books of American manufacturers where costs of production are easily discernible.

"The tariff, gentlemen, is the most important question before Congress. Pray think seriously upon it, and upon the opportunity that knocks at our door, now or never, to build up the great dye industry, an industry that will enable us ever to be ready in case of war to combat fiercely and courageously, and with abundant ammunition,—for remember the next war will be chemical,—a chemical warfare that will require the constant labor of every scientist in America."

IMPOUNDED OIL FUNDS DECISION

IMPOUNDED OIL FUNDS released to oil companies under provisions of the act of February 25, 1920, constitute taxable income in the year in which the funds were paid over by the receiver, according to a decision promulgated by the Commissioner of Internal Revenue.

This decision precludes the allocation of such funds over the years in which they were impounded and subjects such income to the higher taxes applying in 1920 or 1921, according to which year released by the receiver to the taxpayer.

NEW MEXICO CHAPTER ELECTS OFFICERS

Members of the New Mexico chapter of the American Mining Congress held their annual meeting at Silver City, October 3. The program consisted of addresses by several well-known mining men, all expressing confidence in the future of the mining industry. At the close of the session, the following officers were elected for the coming year: John M. Sully, Hurley, Governor; Powell Stackhouse, Jr., San Antonio, first vice governor; S. J. Kidder, Mogollon, second vice governor; C. T. Brown, Socorro, third vice governor; Ira L. Wright, Silver City, treasurer. The Executive Committee was named as follows: J. M. Sully, C. T. Brown, Powell Stackhouse, Jr. The new board of directors consists of the above officers and the following: E. M. Sawyer, Tyrone; B. B. Hanger, Albuquerque; M. W. Porterfield, Silver City; F. W. Vellacott, Silver City; I. J. Stauber, Lake Valley; R. I. Kirchman, Silver City; H. G. S. Anderson, Hurley; G. A. Kaseman, Albuquerque; V. Carl Grubnau, Waldo.

SENATOR NICHOLSON EXPLAINS NEED OF A DEPARTMENT OF MINES

SENATOR Samuel D. Nicholson of Colorado delivered an address before the American Mining Congress Convention Thursday morning, October 20, in support of his bill now pending in the Senate for the creation of a new executive department of the national government to be known as the Department of Mines, and presided over by a member of the Cabinet, the Secretary of Mines.

Senator Nicholson first reviewed the confusion which arose in Washington during the war when it became necessary to create scores of new bureaus in order to stimulate production of the mines, the output of which was essential to the prosecution of the war. He then repeated the statement of Abraham Lincoln that the prosperity of the mines means the prosperity of the nation, and gave his reasons for the creation of such a department which he considered as applicable in peace time. He spoke in part as follows:

"The first Secretary of Agriculture was appointed in 1889, in which year the agricultural output of the nation was valued at $2,460,000,000. In that year the mineral output was valued at $551,000,000. In 1900, the mineral output had expanded to $1,064,000,000, or nearly double that of 1889. In 1910 the mineral output again doubled to a production of $1,992,000,000. The United States Geological Survey estimates that the mineral output of 1920 was $6,707,000,000, or twelve times as great as that of 1889 and nearly three times the value of the agricultural output at the time when the Department of Agriculture was created. Because of this rapid growth in the mining industry and the position of increasing importance that it has, and will continue to assume, for the nation as a whole, there should be no question but that it is entitled to Cabinet representation.

"Another evidence of the importance of the mining industry to the industrial system of the nation is the amount of traffic which it supplies to the railroads. Of a total freight tonnage of 2,307,000,000 tons carried by the railroads of the United States in 1918, the mining industry supplied 1,500,000,000 tons, or over 65 per cent, while the combined tonnage of the agricultural and livestock industries was but 290,000,000 tons, or less than 13 percent.

"It is apparent from the foregoing statement that the railroads of the nation could not provide the necessary transportation facilities for the agricultural and livestock industries were it not for the fact that the mining industry sustains the major part of the burden of their operating costs. This reflects the general dependence of the public upon the operation of the mines for the lowering of the cost of transportation on their food products. The cost of living would become prohibitive if the agricultural and livestock industries were forced to bear the entire burden of operating the railroad system.

"The United States Geological Survey, in estimating the world's production of minerals, shows to what extent the United States has contributed. In 1913 the United States produced 39 percent of the 1,342,300,000 metric tons of coal produced by the world. In 1918 we produced 355,900,000 barrels of crude petroleum, which represented 67.8 percent of the total produced by the world. For the period 1857–1918 the production of crude petroleum by this country was 4,608,000,000 barrels, which represents 61.1 percent of the total world output. This country in 1913 produced 63,000,000 metric tons, or 36 percent of the world's output of iron ore. We consumed in that year 64,500,000 tons of iron ore, from which 31,500,000 metric tons of pig iron was produced, or 40 percent of the world's total, and 31,800,000 metric tons of steel, which was 42 percent of the world's production. The United States produces from domestic ore about 60 percent of the world's output of copper, and, through its commercial control of deposits in Mexico, Peru, Chile and Canada, supplies about 9 percent more. The iron, coal, oil and copper reserves of the United States exceed the combined developed reserves of all other nations. This list of minerals extensively produced in this country could be greatly lengthened.

"Practically all of the foreign nations regard the mining industry so important that they have made special governmental provision for it in creating departments of mines. In Canada and most of the British possessions, a Minister of Mines presides over the department. From an international standpoint, an industry which makes so prominent a contribution to the world's output of fundamentally necessary mineral products as the mining industry of the United States should be dignified by having a separate department in the government, presided over by a representative of the President's Cabinet.

"Many constructive laws have been enacted for the benefit of the agricultural industry and I am in hearty accord with all that has been done as favorably affecting the farmer and the general interests of the public. I contend, however, that the welfare of the mining industry is as fundamentally important to the general welfare and prosperity of the nation as the agricultural industry, and that consideration should now be given the request of that industry for a Department of Mines with Cabinet representation.

"I am informed by the Secretary of Labor, in a letter of recent date, that we have approximately 19,000,000 wage earners in the United States whose employment, either directly or indirectly, depends upon the production of minerals and their manufacture into the machinery of industry, the implements of agriculture, and the tools of trade.

"This nation's labor will have to face the keenest competition of the labor of the world, and the superior operating advantages which our labor should derive from inventive improvements will mean the success and prosperity of the nation's business. Our problems of unemployment will disappear only when the wheels of our industry are all turning, and the speed of these can be greatly accelerated by the creation of a Department of Mines.

"It should now be apparent to the people of our nation that notwithstanding the abundance of our agricultural yield, we have over 5,000,000 men whose umenployment largely results from the present depressed condition of the mining industry. I believe that there are those who still agree with the immortal Lincoln who delivered this message to the mining industry a few days before his death:

"'*Tell the miners for me that I shall promote their interests to the utmost of my ability; because their prosperity is the prosperity of the nation.*'"

SECOND NATIONAL STANDARDIZATION CONFERENCE

STANDARDIZATION of mining methods, practices and equipment received an impetus at the Second National Standardization Conference, held in conjunction with the Twenty-fourth Annual Convention of the American Mining Congress, Chicago, Ill., October 17-22, that will carry the work of this branch of the organization far during the next twelve months. Practically every large manufacturer of mining equipment sent representatives,—in fact one enterprising manufacturing firm sent twelve representatives—and the discussion and conclusions reached at the conference should have the careful consideration of every mining operator in the country. Most of the sessions were held at the Congress Hotel, the convention headquarters. This obviously was an error as many of the representatives found the exhibits of mining machinery and equipment at the Coliseum so fascinating



THE COLONEL

Warren R. Roberts, leader of the mining standardization brigade

that not all sessions were well attended. It has at this early date been definitely decided that the next meeting of this important branch will arrange all of its sessions at the hall in which the exhibit is staged.

To the unceasing, untiring effort of Colonel Warren R. Roberts, president of Roberts and Schaefer Manufacturing Company, chairman of the Coal Mining Branch of the Standardization Division, much credit for the success of the meeting should be given. Those in attendance appreciate keenly the broad vision he has for this work, and the industry as a whole is fortunate in having the direction of this important work under the supervision of two of the greatest authorities upon this subject in the country. The burden of work fell heavily upon Colonel Roberts this year, because of the fact that Mr. Charles A. Mitke, Chairman of the Metal Mining branch has been out of the country on professional work for the past few months. Mr. T. O. McGrath, of the Shattuck-Arizona Copper Company, represented Mr. Mitke at the conference, and very ably assisted in the work of the conference. However, Colonel Roberts unselfishly neglected his own personal business, and devoted his entire attention to making a success of the meeting, for several months prior to the conference. The American Mining Congress takes this opportunity of publicly expressing its great appreciation of the service rendered by this Division, and particularly of that rendered by Colonel Roberts.

In addition to representatives of manufacturers, there were at the conference representatives of the United States Bureau of Mines, the American Institute of Mining and Metallurgical Engineers, the War Department, the American Engineering Standards Committee, the Associated Companies, the Bureau of Standards, the National Safety Council and many mine operators. The addresses delivered were of great importance to the industry, and indicate the wide-spread interest in the subject.

The official Standardization Bulletin will be immediately prepared, and it is hoped that it will be ready for distribution by the first of the year. This bulletin will carry the full proceedings of the conference, and the addresses presented to it. It will be distributed widely, in order that the greatest amount of criticism and suggestion may be received. None of the reports to the conference is final. They are progress reports. It is hoped, however, that the work will progress so rapidly during the coming year, that each section will be enabled to get their recommendations in shape to present to the American Engineering Standards Committee, for approval.

At the conference it was decided to enlarge the work by the appointment of additional committees. The first to be appointed was a Special Joint Committee, whose duty it shall be to coordinate the reports of the sectional committees of the two branches. The two branches have committees doing work along similar lines, such as the Sectional Committees on Mine Ventilation. The Special Joint Committee will coordinate the work in such a manner that there will be no conflicting recommendations. For the Metal Branch the conference appointed upon this committee, Messrs. Arthur Notman and William Daly. The third member of the committee will be appointed by Mr. Mitke. For the Coal Branch, the conference appointed Messrs. C. W. Watts, W. J. Montgomery and E. D. Knight

The conference recommended the appointment of a Publicity Committee. It is believed that a thorough understanding of the purpose of the Division and its work will result in speedy results for the industry, and this committee will attempt to prepare articles for publication that will give the fullest understanding of the work under consideration.

One of the most important recommendations of the conference was the recommendation for the creation of a Committee on Welfare work. The matter was presented to the meeting of the General Correlating Committee held in conjunction with the conference, and the decision reached at this meeting was that the work was one of the greatest importance, and that the American Mining Congress should undertake it, by virtue of its great humanitarian interest in the industry. The first work of the American Mining Congress was that of Safety. Through its efforts the United States Bureau of Mines was organized, and its first work was Safety. The

sectional title for this committee was not definitely adopted. Its work will not pertain to the standardization of miners houses, nor to the sanitation of mining communities, except in the general recommendations. It will concern itself primarily with the coordination of data relative to successful welfare systems, and to the dissemination of the data when collected to the industry generally, in order that companies desiring to install systems of welfare, may have immediately available a digest of the best thought of the industry upon the subject. It is planned in conjunction with this section, to form a committee of the wives of the members of the American Mining Congress, who are interested in welfare and safety work in the mining communites.

Outline of Work Coal Mining Branch

Colonel Roberts, at the opening session, gave the following outline of the work accomplished by the Coal Mining Branch during 1921:

In our "Standardization Bulletin" beginning on page 30 you will find the Reports, Briefs of Discussions, etc. of the Coal Mining Section (Branch) and beginning on Page 60 corresponding reports, etc. for the Metal Mining Section (Branch) with the exception that by some over-sight one important report of the Coal Mining Branch, namely, the Joint Report of the two Committees on Underground Power Transmission and Power Equipment were not printed in the proper order and will be found on Page 71 of the "Bulletin." I am assuming that all our members and guests have read these Reports, Briefs of Discussions, etc. and are, therefore, familiar with the work of our Standardization Division as presented in the "Standardization Bulletin." I will, therefore, only review the progress which has been made on our work since our last Standardization Conference. This review must necessarily be made by reporting on the progress made by each Sub-Committee.

Mine Drainage—As indicated by the report of this Committee last year they had made no particular progress and the Committee was therefore immediately reorganized after our last Standardization Conference. The results by the reorganized Committee have been most gratifying. Mr. E. D. Knight of the Cabin Creek Consolidated Coal Company, Kayford, West Virginia, was induced to accept the chairmanship of this Committee and by diligent effort he and his Committee have presented a very satisfactory progress report.

Outside Coal Handling Equipment.—A change in the chairmanship of this Committee was made immediately after the last Standardization Conference as the Chairman of your General Committee had previously acted as Chairman of this Sub-Committee and found it impossible to continue to direct this work. The American Mining Congress persuaded Dr. Henry M. Payne, Consulting Mining Engineer of New York City, to accept the chairmanship of this Committee. Dr. Payne somewhat enlarged his Committee, immediately laid out a good program for them to develop and has an interesting report for your consideration.

Mining and Loading Equipment.—A change was also made in the chairmanship of this Committee as Mr. Carl Scholz, who had previously directed this work, having assumed new and larger responsibilities, could not continue to handle this work and with his assistance we secured Mr. C. A. Cabell, Vice-President, Carbon Fuel Company, Charleston, West Virginia, to act as Chairman. We regret to report however that Mr. Cabell has been facing so many difficulties, along with other operators of West Virginia, that he has not had the time to devote to this work which its importance justifies. This Committee, therefore, will not present a report but will offer a program for discussion at our Conference and we hope that by this method we will develop this subject and be able to have some sort of a report drawn up for this Committee to be contained in our next "Standardization Bulletin."

Mine Ventilation.—This Committee presents a most satisfactory report, being an amplification and revision of the report they rendered at our last Conference in Denver. Many recommendations are offered by this Committee which will deserve the most careful consideration of our Conference.

Underground Transportation.—I wish to call especial attention to the report of this Committee as the method of handling their work offers, to my mind, an excellent suggestion for some of our other Committees. This Committee presented a very excellent report at our last Standardization Conference, which has acted as a basis for their work during the past year. On resuming their work this year they divided Underground Transportation into three classifications; namely, "Mine Tracks and Signals," "Mine Locomotives" and "Mine Cars" and appointed a Sectional Committee to develop a program and a report with recommendations to the main Committee. Their reports are therefore offered in this form, namely, one General or Reviewing Report and three Sectional reports on the subjects named. I suggest that some of our other Committees having classifications of work that could advantageously be sub-divided into sections, follow the procedure of this Committee for by so doing and carefully selecting the chairmen and members of such Sectional Committees the work can have more careful and detailed consideration.

Joint Committee on Power Equipment and Underground Power Transmission.—When these two Committees started to develop their work last year they decided that the work was so intimately interwoven that they could conduct their investigations more advantageously by working together, they therefore followed this method and rendered a joint report. This report is the one referred to as being disconnected from the other reports and will be found on Page 71 of the "Standardization Bulletin." A review of this joint report indicates that a vast amount of careful and conscientious work was done by this joint Committee.

When we requested this joint Committee to prepare a program for this year's work they advised that they wished to delay further work on their subjects until they could receive the "Standardization Bulletin" and thereby furnish members of their Committees and also have for distribution to the Industry, copies of their last year's report together with discussions at the Conference, etc. Due to an unavoidable delay in the issuing of the "Standardization Bulletin" this joint Committee therefore did not undertake any work during this season and will have no report to offer at this time. They advised us, however, that they have followed the method of procedure suggested by Mr. Callbreath in his "Introduction" to the Standardization Bulletin and that on receiving replies from men in the Mining Industry and allied professions that they will then take under consideration the suggestions made in these replies and make such revision of their joint report as seems advisable.

Outline of Work Metal Mining Branch

Mr. T. O. McGrath, representing Mr. Mitke, chairman of the Metal Branch, made the report for that branch and in part said: "The Metal Mining Branch is scarcely far enough along to render a report. It has only one completed report, that on Underground Transportation. Mr. Mitke was unable to be present because the sailing of the boat delayed him. The metal mining industry at the present time is much depressed, and has been all year. We expect the cooper industry to show a revival next year, and without doubt the growth of the metal branch will be satisfactory. Progress reports are very interesting and I believe that every one here will be interested in hearing the progress that has been made in the committees of the metal branch, for in spite of the depression our growth has been continuous."

ADDRESS OF COL. WARREN R. ROBERTS

So that a better understanding of the work of the Standardization Division of the American Mining Congress may be had, we believe that the opening address to the Second National Standardization Conference, made by Colonel Roberts, will be enlightening. The subject was, "National Co-ordination of Standardization through the General Correlating Committee," and the address, in full, follows:

As originally planned, the subject which I am now to discuss was given to Prof. E. A. Holbrook, Assistant Director of the U. S. Bureau of Mines, as he is the Chairman of the General Correlating

Committee. However, in developing these two programs it became necessary to allot a different subject to Prof. Holbrook on Wednesday forenoon, and the speaker, being Vice-Chairman of the General Correlating Committee, was under the necessity of taking his place on today's program.

I did not realize how formidable a sounding subject had been selected for this address until I handed our program to one of my friends and called his particular attention to the subjects and speakers for these two special sessions. My friend read through these two programs carefully until he came to No. 7 for Thursday afternoon, when, after considerable hesitation, he endeavored to read the title of this number, and after stumbling through all these long words, he was finally stumped on "Correlating" and ended by saying "Hell of a subject." I admitted the allegation but then explained to him that this subject was not selected because of the many high sounding words, but because it correctly described the subject matter for this address.

A full statement of the organization and development of this General Correlating Committee was given at our last Standardization Conference, and is contained in a Standardization Bulletin issued recently by the American Mining Congress I will therefore give



CHARLES A. MITKE

Chairman of the Metal Mining Branch, Standardization Division

you only a statement of the necessity for this committee in carrying out the standardization program of ,the several member bodies of the committee.

There are several national engineering societies and industrial organizations that have committees working on programs of "Standardization," "Safety" and kindred subjects which somewhat parallel the work of the Standardization Division of the American Mining Congress. It therefore seemed advisable to organize this committee with representation from each of the societies or organizations that were interested in this work of Standardization for the mining industry. Therefore, about a year ago, this committee was formed and proceeded to develop plans for correlating the work of the various committees referred to above.

Since our last Standardization Conference this committee has been partially re-organized and considerably expanded to include other societies and organizations making application for admission to this work.

As now constituted, the committee is composed of two classes of memberships—viz., Active, and Associate Members.

"Organizations entitled to active membership on the committee are those national bodies whose sole interest is in mining. National organizations only a part of whose work lies in the mining field, are entitled to representation on the committee as Associate Members, without vote, but to be consulted whenever affairs relating to their parts of the industry are under consideration."

The following is the personnel of the present committee:

American Institute of Mining & Metallurgical Engineers—Howard N. Eavenson, Consult. Engr., Pittsburgh, Pa.; Graham Bright, Westinghouse Elect. & Mfg. Co., East Pittsburgh, Pa.

The American Mining Congress—Charles A. Mitke, Consult. Engr., Bisbee, Arizona; Col. Warren R. Roberts, Pres., Roberts and Schaefer Company, Chicago, Ill.

National Safety Council—B. F. Tillson, Asst. Supt., New Jersey Zinc Co., Franklin, N. J.; S. J. Williams, Sec. & Chf. Engr., National Safety Council, Chicago, Ill.

U. S. Bureau of Mines—Prof. E. A. Holbrook, Asst. Direct., U. S. Bureau of Mines, Washington, D. C.; O. P. Hood, Chf. Mech. Engr., U. S. Bureau of Mines, Washington, D. C.

American Institute of Electrical Engineers, New York City—F. L. Stone, General Electric Co., Schenectady, N. Y.; Rep'd A. B. Smith.

The Associated Companies, Hartford, Conn—C. B. Butterfield, Manager. Represented by J. H. Griftner, Associated Companies, Hartford, Conn.

The National Safety Code Committee is an associate member.

The General Correlating Committee function under and report to the American Engineering Standards Committee and represent this committee on all matters of Standardizations as applied to the mining industry. At the last meeting of the committee, "It was agreed that the functions of this committee should be to suggest to the American Engineering Standards Committee subjects for standardization, recommend sponsors, define the scope and limits of a proposed standard; assist in adjusting conflicts or clearing up ambiguities; follow up work underway, and report from time to time upon progress made within its field of activities."

Since the member bodies of this General Correlating Committee have committees working on subjects, some of which wholly apply to the mining industry and others which only partially apply, and since some of these organizations have developed a very considerable program on Standardization, as applied to,the mining industry, and to prevent as far as possible the interference with such work, it has been arranged that the method of procedure shall be as follows:

Each of the members of the committee are to pursue their present programs of standardization and whenever any of them have completed any particular portion of their work, which they wish to submit to the industry as a standard, such work shall be first submitted to the General Correlating Committee who in turn will submit it to the various members of the committee for their consideration and approval, or for suggestions.

Should such work be approved by all members of the committee, then it is submitted by the committee to the American Engineering Standards Committee as an American standard.

Should it develop that there are sufficient suggestions or revisions to the work as submitted by the members of the committee, then a sectional committee will be formed to review such work, this sectional committee to be composed of representatives of all members of the General Correlating Committee who are interested in the subjects submitted.

This sectional committee will then revise and approve such work, and re-submit it to the General Correlating Committee for submission to the American Engineering Standards Committee as an American standard.

Members of the General Correlating Committee who are much interested in any such subjects submitted, are to act as joint sponsors with the member submitting such subjects for revisions, while other members who are only partially interested in such subject are to have representatives on the committee to hear the evidence, make sug-

gestions, etc., but do not have a vote in reaching any conclusions regarding the subject.

It is very interesting to know that while this General Correlating Committee has been organized only a short time, and that while the very nature of their work of harmonizing the activities of all the societies and organizations interested in standardization of mining methods and equipment, that they have made very material progress—first in having completed a good, workable organization, adopted regulations for directing this important work as outlined above, and now have under consideration from the members of the committee the following important subjects on which sectional committees will doubtless be formed at a meeting of the General Correlating Committee to be held during the present week here in conjunction with the Standardization Conference:

Safety Code for Ladders.—The American Society of Safety Engineers having a committee preparing a "Safety Code for Ladders" have inquired of our committee whether we would be interested in that portion of their subject as applied to mine ladders, etc., and have been advised that several members of the General Correlating Committee are interested in this subject and will wish to be represented on any Sectional Committee formed to consider the matter.

Mine Ventilation.—The American Society of Heating and Ventilating Engineers having accepted sponsorship for a "Safety Code for Ventilation in public, semi-public, and industrial buildings" have inquired whether our committee would be interested in the formation of a Sectional Committee to deal with the ventilation of mines and have been advised that the American Mining Congress and some other members of our committee are not only interested in this subject, but have committees working on Mine Ventilation with a well developed program.

Uniform Mining Laws.—At the last meeting of our committee it was decided to inquire from each of the organizations represented on our committee, if they wished to be represented on a proposed Sectional Committee for formulating basic mining regulations, it being understood that this Sectional Committee would undertake to draw up the minimum requirements for a good and uniform State Mining Law.

The Chairman of our committee advises that several of our members have responded favorably and that such Sectional Committee will doubtless be formed at the present meeting of the committee.

The U. S. Bureau of Mines has submitted to our committee three proposed tentative American Standards—

(1) Safety Rules for installing and using electric equipment in bituminous coal mines.

(2) Portable electric mine lamps.

(3) Storage Battery Locomotives for use in gaseous mines.

The Bureau of Mines have been made sole, or joint sponsor on Sectional Committees to be formed for considering these three subjects and other member bodies of our committee have been asked to advise whether they are interested in these subjects, and therefore whether they wish to join the Sectional Committees as joint sponsor or simply as members to consider these proposed standards.

Sectional Committees for these subjects will doubtless be appointed at the present meeting of the committee.

The above list of important subjects, under consideration by our committee, are given simply to illustrate the present activity of the committee and to indicate the wisdom in having formed such a general committee to co-ordinate the work on mine standards being carried on by many different societies and organizations.

We are hoping through this Committee not only to direct Standardization for the mining industry, but to awaken in the member bodies a realization of the fact that through Standardization we can most easily and quickly carry out the national programs of Safety and Economy which these member bodies have been diligently fostering for many years.

RESOLUTIONS ADOPTED

MEMBERS of the Resolutions Committee at the Twenty-fourth Annual Convention of the American Mining Congress were:

John L. Steele, Alaska; Erskine Ramsay, Alabama; Arthur Notman, Arizona; Walter H. Denison, Arkansas; E. C. Voorhies, California; E. C. Stimson, Colorado; N. S. Greensfelder, Delaware; Francis A. Thompson, Idaho; Albert J. Nason, Illinois; P. H. Penna, Indiana; T. A. Dumont, Iowa; F. E. Doubleday, Kansas; Henry Laviers, Kentucky; F. E. Mariner, Louisiana; G. M. Gillette, Maryland; J. B. Hardon, Massachusetts; F. W. Sperr, Michigan; F. A. Wildes, Minnesota; Arthur Thatcher, Missouri; Wm. B. Daly, Montana; Roy M. Harrop, Nebraska; John R. Allen, Nevada; Robert M. Catlin, New Jersey; G. A. Caseman, New Mexico; Sidney J. Jennings, New York; W. J. Montgomery, Ohio; George C. Matson, Oklahoma; W. J. Thompson, Pennsylvania; O. Ellerman, South Dakota; F. H. Enright, Tennessee; Wallace Pratt, Texas; J. C. Dick, Utah; Falcon Joslin, Washington; R. M. Lambie, West Virginia; E. F. Yahr, Wisconsin; Peter Kobi, Wyoming.

The following resolutions were adopted by the convention:

The Gold Standard

Introduced by the Gold Conference

Whereas, the purchasing power of foreign countries has and will continue to diminish with a continued loss of gold to the United States, and

Whereas, our export trade upon which the prosperity of the nation, and especially that of the agricultural and mining industries so greatly depends, has been and will continue to be curtailed because of this condition, and

Whereas, the restoration of our export trade depends upon the restoration of the currencies of foreign countries to the gold standard par and the return to the normal purchasing power which would result, and

Whereas, the present system of conducting exchange transactions with the attendant difficulties arising from speculation in the currencies of foreign nations is not scientific, and if continued will further delay the financial recovery of the world, now,

Therefore Be It Resolved, that the American Mining Congress in convention assembled hereby expresses its appreciation of the activities of the Hon. Tasker L. Oddie, U. S. Senator from Nevada in support of the gold standard, and pledges its earnest support to the principle that the gold consumption in manufactures and the arts should be curtailed and the production of new gold stimulated, thus safe-guarding the maintenance of the gold standard and the monetary gold reserve of the nation from further industrial depletion, and

Be It Further Resolved, that this convention endorse H. R. 8404 introduced by Representative Louis T. McFadden, Chairman of the Banking and Currency Committee of the House of Representatives providing for a conference of the representatives of Great Britain, France and the United States to investigate the subject of exchange stabilization with a view of determining the means which may best be employed to remedy the present chaotic condition of the exchanges; and

Be It Further Resolved, that a copy of this resolution be sent to the President of the United States, the Secretary of the Treasury, the Comptroller of the Currency, and to the members of the Senate and House of Representatives of the United States.

Department of Mines

Introduced by Wm. J. Loring of California

Whereas, the mining industry is confronted with special problems due to the consequence of war and the present urgent require-

ments of re-adjustment, the solution of which could be greatly facilitated by Cabinet representation for the mining industry; and,

WHEREAS, the employment of nineteen million wage earners of which some five million are now out of employment is dependent directly or indirectly upon the products of the mines, the implements of agriculture, the machinery of industry and the tools of trade; and,

WHEREAS, the agricultural industry, in 1889 when a cabinet representative for that industry was appointed, had a total value of production of less than two and one-half billions of dollars, while the mining industry had during 1920 an estimated value of production of over seven billion dollars; and,

WHEREAS, the American Mining Congress has recognized the need for the creation of a Department of Mines and direct cabinet representation for the mining industry, throughout the twenty-four years since its organization during which period this organization has endorsed many bills which have been introduced in Congress for this purpose; and, therefore,

Be It Resolved, that the American Mining Congress in the 24th Annual Convention assembled at Chicago, Illinois, hereby endorses S. 1957 introduced by Senator Samuel D. Nicholson of Colorado, which centralizes all governmental activities related to the mining industry in one department to be presided over by the Secretary of Mines who would be a member of the President's Cabinet, and

Be It Further Resolved, that a copy of this resolution be sent to the President of the United States, the Secretary of the Interior, and to the members of the Senate and House of Representatives of the United States.

MINING LAW REVISION

Introduced by Horace F. Hunt, Colorado

WHEREAS, the Metal Mining Laws of the U. S. have been in effect for more than fifty years and during that long period have been interpreted and made definite by a vast number of rulings and court decisions—and while the law may have some defects, the tremendous development of the Mining Industry under its provisions proves it to be one of the best mining laws in the world, and,

WHEREAS, any general revision would in all probability have as many, if not more, defects than existing law and would in addition, unsettle the great system of Mining Law which has grown up through so many years of experience and interpretation, and,

WHEREAS, it would be easy to correct the defects in the existing law such as the extra-lateral rights provision by a simple amendment without disturbing the great body of the Mining Law which has worked so well.

Now Therefore, it is the sense of your Committee that any general revision of the Metal Mining Laws at this time is unwise and inexpedient and be it resolved: that the Board of Directors of the American Mining Congress be instructed to appoint a committee to ascertain, as quickly as possible, the opinions of other mining men of the states affected by the proposed revision regarding the necessity for changing the present mining laws and the desirability of the changes embodied in H. R. 7736, and,

Be It Further Resolved, that the Mining Congress use its efforts to further the desires of the majority of mining men of the states affected by the proposed revision as so ascertained.

STATE MINE TAXATION

Introduced by the Tax Conference

Resolved, that the president of the American Mining Congress appoint a committee of not less than ten, with authority to increase its number, to study the question of state taxation of mines within the several mining states of the Union and report to the secretary of the Congress as soon as practicable.

THANKING TAX COMMISSIONS

Introduced by the Tax Conference

Resolved, that this Conference register a vote of thanks to those members of State Tax Commissions who have been good enough to take their time and give their efforts in presenting to this conference so carefully the subject of the taxation and revenue systems of their respective states, from which we have so greatly benefited; and,

Be It Further Resolved, that the Committee on Resolutions of the American Mining Congress be requested to spread this vote of thanks in the proceedings of the American Mining Congress in behalf of this division.

STATE TAX LEGISLATION

Introduced by E. C. Stimson

WHEREAS, the discussions at this Convention particularly those of the National Tax Conference, have shown that there is a tendency in certain states to discriminate unfairly against mining properties and mining enterprises in matters of taxation and thereby curtail the mining industry and discourage the development of mines in many localities, and discouraging those who otherwise would take reasonable risks in developing the mining resources of the country.

Be It Resolved, that the American Mining Congress protest against all such forms of taxation which directly or indirectly discriminate against mining property or mining enterprise and all forms of taxation which have for their purpose the object of obtaining any greater amount of revenue from mining property or mining operations than is obtained from other property, and,

Be It Further Resolved, that the Tax Division of the American Mining Congress be authorized, upon request of any state chapter, to provide a representative to appear before any board, commission or other legislative committee and to present information looking to the prevention of any such discriminatory or inequitable forms of taxation, and that the Tax Division be authorized to use all available facilities of this organization for this purpose and for the purpose of carrying on a campaign of education in matters of mine taxation.

ALASKAN GOVERNMENT

Introduced by Falcon Joslin

WHEREAS, the development of the great territory of Alaska is a subject of national importance, but a serious decline in the population of the territory is taking place, and

WHEREAS, the form of government of the territory with its administration distributed through a great number of bureaus, boards and commissions acting without co-ordination from Washington, 4,000 miles and more away, where the law-making power rests, has been mainly responsible for the ill-adapted and unworkable policies under which the territory is suffering.

Now Therefore Be It Resolved, by the American Mining Congress in 24th Annual Convention assembled that it is the sense of this organization that the restrictive policies in effect in Alaska should be reversed and the resources there opened for development on the most liberal terms.

Resolved Further, that it is the sense of this organization that the government of Alaska should be re-organized that its administration consolidated and placed within the territory and made directly responsible to the President.

ECONOMIC EDUCATION

Introduced by A. G. McGregor

WHEREAS, during the period of inflation through which we have passed no difficulties were experienced in the adjustment of wages and commodity prices to the reduced purchasing power of our monetary unit, and

WHEREAS, during the period of deflation through which we are now passing business men hesitate to accept less dollars for commodities and the workers hesitate to accept less dollars for wages, and,

WHEREAS, unless all commodity prices and all wages are kept closely adjusted to the increasing length of our yard stick of value, poor business, unemployment, and suffering are bound to result, and,

WHEREAS, when our industrial machine is thrown out of adjustment the consequences may be serious if intelligence is not used, and,

WHEREAS, the great good accomplished by education in safety first and in winning the war is realized by all, and

WHEREAS, while we can allow our economic illness to continue unabated, running its course with long after effects, it is time we were using intelligence and by a campaign of education and co-operation rid ourselves from its ravages.

Now, Therefore Be It Resolved, that the American Mining Congress in convention assembled does hereby endorse a program of sound business education to the end that labor will better understand the problems of capital and capital will better understand the problems of labor and thereby hasten a return to normal industrial activity upon which the employment and well being of all our people depend.

RAILROAD RATES AND WAGES

Introduced by Wm. J. Loring

WHEREAS, all commercial progress is based upon transportation, no commodity being of any value until it is removed from the place of its original location, and,

WHEREAS, the transportation facilities furnished by the railroads of the United States have been a controlling factor in the development of our industries, and,

WHEREAS, a large part of the costs of transportation as based upon the wages paid to the labor employed in its operation, and,

WHEREAS, at the beginning of the war the wages paid to railroad operatives were equal to or above the average paid for similar service in other activities, and,

WHEREAS, during the war the increasing cost of living made necessary increases in the wage scale to all labor, and particularly high increases were granted to railroad operatives, and,

WHEREAS, because of this increased cost of operation the transportation rates of the railroads were of necessity increased in approximate proportion to the increase in wages, and,

WHEREAS, the costs of living are gradually decreasing, and,

WHEREAS, wages in other lines have been decreasing, and living costs to wage earners in other lines which have accepted reductions would be more nearly commensurate if costs of transportation could be reduced, and,

WHEREAS, the last advance in wages granted by the railroads to their operatives was approximately 25 percent, which increase in wage resulted in an increase in freight rates of approximately 35 per cent; and,

WHEREAS, the cost of living now is less than at the time when the wage scale was fixed, to which the 25 percent increase was added, and, further, a reduction in freight rates would immediately reflect itself in a further reduction in living costs; and,

WHEREAS, high freight rates furnish a continuing barrier to a return to normal conditions, which freight rates cannot be materially diminished so long as the present wage scale is in effect; therefore,

Be It Resolved, by the American Mining Congress in 24th Annual Session assembled at Chicago, Illinois, October 17-22, 1921, that we urge the railroads of the United States in conjunction with the Interstate Commerce Commission and the Railway Labor Board to immediately order that at some early date the last increase in freight rates will be abolished for the benefit of shippers, and that at the same time the last advance which was granted to the railroad operatives will be rescinded, and,

Be It Further Resolved, that we pledge the endorsement and full support of the mining industry of the United States to the railroads in their effort to simultaneously reduce rates and wages to the level existing before the last increases were made.

URGING EARLY TARIFF LEGISLATION

Introduced by the Tariff Conference

WHEREAS, the Congress of the United States is recognizing, in the Fordney Tariff Bill, the necessity for adequate protection for the products of American Mining Industries:

Be It Resolved, that for the speedy resumption of industrial activity by employment of labor; for the realization of industrial independence in the development of our natural resources; for the establishment of the basic mineral industries of the United States on a permanent self sustaining foundation, and for the national security and defense, that those tariff schedules now proposed in the Fordney Tariff Bill, H. R. 7456, which offer adequate protection to American mining industries be sustained before the Senate Finance Committee. That the Senate Finance Committee be requested to give its consideration to the needs of those mineral industries for the products of which adequate provision for protection has not yet been made, and,

Be It Further Resolved, that the speedy enactment of the proposed tariff legislation be urged upon the Congress of the United States.

AMERICAN VALUATION

Introduced by the Tariff Conference

WHEREAS, in order to provide tariff duties which shall adequately protect the industries to which the mining industry furnishes its products as basic materials, a method of valuation must be established which will prevent the dumping of undervalued foreign products in times of industrial depression.

Be It Resolved, that the American Mining Congress endorses the broad principle of American valuation, and leaves to the wisdom of the Congressional committees the determination of the administrative methods necessary for its proper application.

WAR MINERALS RELIEF

Introduced by the War Minerals Conference

WHEREAS, many producers of war minerals who suffered tremendous losses through their patriotic war time endeavors are still not recompensed as contemplated by the government under section 5 of the act of March 2, 1919.

Be It Resolved, that the American Mining Congress heartily commends the attitude expressed in the letter of the Secretary of the Interior to the Committee of Mines and Mining, of the House of Representatives under date of June 2, 1921, in his evident desire expressed therein to achieve absolute justice and equity for all these claimants.

That the sympathetic consideration of the Mines Committees of the House of Representatives and of the Senate to secure adequate relief for these war mineral claimants be heartily commended and that the passage of the needful additional legislation to accomplish this purpose be given vigorous support

COLORADO RIVER POWER PROJECT

Introduced by the Arizona Delegation

WHEREAS, the prosperity and progress of the western states of Wyoming, Colorado, Utah, Nevada, New Mexico, Arizona and California depend upon more irrigation and cheaper power. The industries principally concerned are agriculture, coal and metal mining and transportation. The prosperity of those areas already developed by irrigation is sufficient evidence of the wisdom and need of additional development. The coal and metal mining industry of this area is greater than that of any similar area in the world. Its welfare depends primarily on cheaper power and cheaper transportation, and,

WHEREAS, the possibilities of development of both irrigation and power on the Colorado River in Arizona have long been known, but more particularly within recent years has their importance been called to the attention of the federal government through the investigation of the U. S. Reclamation Service of the Department of the Interior, ably seconded by the activities of the late Secretary of the Interior, the Honorable Franklin K. Lane and by his successor, the Honorable Albert B. Fall, and,

WHEREAS, to secure maximum benefits from these resources no plan should be adopted which will not insure their comprehensive development, now therefore

Be It Resolved, that the American Mining Congress in convention assembled October, 1921, hereby respectfully urges the federal government to proceed at once to complete whatever further investigations may be necessary for the undertaking of this great project, and to provide funds for the building of the first unit thereof.

Conference With Secretary Hoover

From the Committee on Resolutions

Whereas, the American Mining Congress highly appreciates the honor and confidence manifested by the President of the United States in his letter directed to this convention asking that it give consideration to the working out and adoption of methods which will measurably regulate the demand for coal and make its mining and distribution more uniform over the whole year; and,

Whereas, the Secretary of the Department of Commerce has by direct request asked this convention to appoint a committee representative of the whole mining industry to confer with him in the working out of plans and me hods by which the Department of Commerce and other departments of the government may be of greater service to the mining industry of the country, by assisting in putting into effect the most practical and beneficial methods in the production and distribution of our mineral products, and,

Whereas, the conditions and proposals thus placed before this convention by the national administration are of great national importance to all branches of the mining industry; therefore

Be It Resolved, that in response to those requests, a committee be appointed of which the president and secretary of the American Mining Congress shall be ex-officio members from the representative mineral producers of the United States to confer with the Secretary of Commerce and give all assistance possible in developing methods and plans of mineral production and distribution that will improve the conditions which now prevail and assist the Secretary of Commerce in his endeavor to render greater service to the mineral industry of the country.

Conservation and Economy

Introduced by S. M. Evans

Whereas, the public interest will be served by conservation and the lowering of costs of the necessaries of life and the requirements of commerce, and,

Whereas, better co-operation between the producers and distributors of these necessary commodities will serve the public interest, and,

Whereas, certain of our laws now prevent, or fail to provide for, such necessary and beneficient co-operation in such production and distribution of products in the public interest.

Therefore Be It Resolved, that the American Mining Congress advocates such revision of the laws as will enable those engaged in mining and other industrial production and distribution to apply, in the conduct of all the great branches of our national industries the necessary principles of conservation in production, economy in distribution, greater co-operation with labor and the consuming public, to the end that labor in the mining industry may be relieved of the burden of intermittency of operation, and the products of our mines and industries delivered to the ultimate consumer at the lowest possible price.

More specifically, we recommend that Congress so amend the Sherman Anti Trust Act as to vest in miners, manufacturers, and distributors, the right to collect, collate, and distribute to themselves and to the public, statistics of their operations, thus relieving our mining and other industries from the necessity of operating in ignorance of existing stocks, current production, and current demand.

Convention Co-operation

Introduced by the Committee on Resolutions

Whereas, the success of the twenty-fourth annual convention of the American Mining Congress held in Chicago, October 17-22, 1921, has been made possible by the cordial co-operation of the members of the Illinois Committee on Arrangements, the valuable assistance of the Chicago Association of Commerce and of the Illinois Manufacturers' Association; and,

Whereas, the city of Chicago through its official representatives and in the courteous hospitality of its citizens has given to the delegates of the Mining Congress a real feeling of friendly welcome:

Be It Resolved, that the officers and members of the American Mining Congress hereby express our deep appreciation of the co-operation given by the members of the Illinois Committee on Arrangements, the members of the Exposition Committee, the Chicago Association of Commerce, the Illinois Manufacturers' Association; and especially we desire to express our appreciation of the work done by Francis S. Peabody, Chairman of the Illinois Committee on Arrangements, James H. Channon, Chairman of the Exposition Committee, and H. H. Merrick, treasurer of this committee.

Newspapers and News Services

Introduced by the Committee on Resolutions

Resolved, by the American Mining Congress in Twenty-fourth Annual Convention assembled in Chicago, October 17-22, 1921, that it is the opinion of the officers and members of this association that the publicity received during the meeting has been constructive in nature and of great value to the mining industry and to the business of the country generally;

Resolved, Further, that we express our deep appreciation for the co-operation given to this end by

The Associated Press
City News Bureau
International News Service
United Press Associations
Journal of Commerce
Chicago Herald & Examiner
The Daily News
The Chicago Journal
The Chicago Evening Post
The Chicago American

FOREIGN EXCHANGE DISCUSSED BY MINING CONGRESS ECONOMIST

THE FOREIGN EXCHANGE situation was clearly delineated and possible remedies were outlined when the House Committee on Banking and Currency opened its hearings on Chairman McFadden's Treasure, which would request the President to invite Great Britain and France to participate in an international conference on the exchange problem. Much fundamental data on the subject was presented to the committee by H. N. Lawrie, economist of the American Mining Congress, whose testimony laid emphasis upon the manner in which violent changes in foreign exchange result in hardships to importers when contracts were in importers' currency, and to importers when they were in exporters' currency.

Mr. Lawrie pointed out that any benefits which may follow the Conference on Limitation of Armament in reduction of military expenses should be reflected in benefits in exchange of the countries affected, but that under the present exchange system these benefits will be greatly impaired through speculation in exchange and other elements, and that these should be removed by the proposed investigation and terms definitely fixed for reflecting these benefits to their fullest extent. While the industrial prosperity of the country is dependent on the solution of the problem, Mr. Lawrie said the mining industry depends on export trade to sustain full time operation.

"The problem before the Exchange Conference," concluded Mr. Lawrie, "would be the elimination of speculation in exchange. Any proposed remedy should also reflect in the exchange rate the improvement or the weakness of the domestic financial position of a nation. It should reflect ability to increase gold reserves, decrease note circulation, balance fiscal budgets, decrease adverse trade balances, and all other sound improvements in financial conditions."

It is proposed that the Conference shall meet in Washington three months after the President extends the invitation, and that the American delegates shall report the results with recommendations to Congress.

NO CLOTURE ON COAL

By Geo. H. Cushing

CLOSE OBSERVERS AGREE that they have never known a time when there was so much unrest in the coal industry. Not only are worker and employer in an intensive warfare but all of the old feuds between groups have broken out afresh and are more bitter than ever known. Naturally, the accusation that the railroads are the author of coal's ills is revived with vigor. It is a ten-ring circus.

One superficial explanation is that the high prices brought unnecessary developments; we are busy eliminating the unnecessary mines; that accounts for the friction and the heat. That is part of the truth only.

Another superficial explanation is that the unrest in the coal trade is merely part of that uneasiness seen round the world. There is something in that, too, but it is not a complete answer.

There is something which goes much deeper and which a few incidents will help to make clear. On some twenty or more occasions within the last two years, occasions have arisen when someone had to appear—for an hour or two only—as the spokesman for the trade or for some small group within the trade. One of these occasions involved nothing more than a need to satisfy the desire of a certain city club for information about coal, and yet, in the latter case particularly and on all the occasions generally tremendous quarrels arose among the coal men over the selection of the temporary spokesman. On one occasion the strife was so bitter it became necessary to hire a lawyer at a good round sum. Since all those who wanted to speak could not be satisfied, the number of coal men suffering from heartburnings and unsatisfied ambitions was all out of proportion to the number of occasions. And, the successful candidates found themselves with but little honor from the events but with a large crop of new enemies on hand. The feeling has been so intense that on particularly notable occasions, a few disappointed aspirants have become physically sick from nursing an ingrowing grouch.

Since some of these lively incidents antedate the time when the trade was conscious of its overdevelopment, or when the whole world was thought to be restless, they point to a cause which lies far deeper than either of these facts. For the real explanation of the present phenomena we must dig much deeper; we must look for it in some great change which has taken place. Since coal men everywhere are breaking their hearts in a great struggle to get to the American people with their personal version of the coal story, it must be concluded that—to their minds at least—the great change has come in the attitude of the public toward coal.

It is common knowledge that before the war it was no honor to be a member of the coal trade. Indeed, it rather interfered with one's social and religious aspirations. No one thought, even of becoming the leader of it. A few such efforts had been made and all resulted disastrously. That was because the people had no lively concern about coal. Practically no one appreciated its importance to the nation. Certainly few coal men had any such a national view of their industry as would lead them to make today's sacrifice of friends and money to win tomorrow's glory. Five or ten years ago the coal business was rather contemptible, yielding as it did no profit and offering no prospect of glory.

It is significant that, at that time, it was supposed in America that the supply of coal in England was practically inexhaustible and that Great Britain had an unending monopoly of the world's coal market.

One of the big and sure results of the war was the disclosure of the many respects in which Great Britain's coal position is fundamentally weak.

Another big result of the war was the destruction of that power of the German Empire in the world markets which rested upon its control of the second most important supply of coal.

A third result of the war was the development of the fact that with respect to quantity, quality and price, the world had no truly dependable supply of coal outside of America.

I mean to say that because Great Britain has eliminated herself and because Germany has been forcefully ejected from the world market in any large way, the American coal industry has assumed a dignity which was wholly unknown to it in past.

The world is coming—slowly but surely—to understand that America has under its soil 52 percent of the world's supply of coal. It is beginning to appreciate that a great supply, sufficient for many generations, is of the highest quality and is available for world distribution.

By way of contrast, the world is beginning to appreciate that the second largest deposit of coal is in Canada. However, almost all of it is either of inferior quality or is unavailable to the world. The third largest deposit is in China but its coal is not only unavailable but its deposits are very badly faulted. Insignificant quantities only are now controlled by Great Britain and Germany. This leaves America master of the world's situation.

One of the lessons growing out of our effort to conquer world trade was:

The flag follows the coal and general trade follows the flag.

Coal, therefore, is the true pioneer in the world commercial exploits of any nation. Without supplies of coal to exchange for finished products, there is not much of either reciprocity or growth in world trade. Indeed, in an international sense, coal dominates industry.

Holding a commanding position in the world as a result of having coal, it is only natural that the coal industry should come to hold a commanding position in American life. This leads to a philosophical observation. It has never failed to happen that when a new source of great power appeared, men broke their hearts and wrecked their lives in an effort to annex that source of power. Always, men have tried to tie it to themselves that they might reap the glory which went with it.

This explains perfectly and yet simply, why some members of Congress stand ready to wreck a party or emasculate the constitution if thereby they may bring the coal industry under governmental control and appropriate its power and glory to themselves. They would hardly be human if they did not so aspire. Richard III murdered the two sons of Edward for a prize not one percent as rich or great.

If the politicians living lives remote from the coal industry have so quickly sensed its potentialities, and if they have, so soon, begun the struggle for mastery, it is only natural that ambitious coal men who have grown up with the industry, should be innoculated by the same fever. It is but natural, therefore, that ambitious coal men should struggle to occupy coveted positions in the coal industry. If, therefore, we have "wars and rumors of wars" over who shall speak for coal, and if we have heart burnings and physical sicknesses among men who are disappointed, it is nothing to be marveled at.

And yet it is true that, with this tremendous struggle

for leadership underway, there are those who would close the public forum to certain men, both inside and outside the industry. That there are those who would limit the debate on coal, that their own ideas concerning it might the more easily prevail. Such a policy is, of course, foolish, because it is short sighted.

The plain truth is that coal has had neither a program nor a leader. The present unprecedented upheaval in the trade tends toward the creation of both. If the debate is not stopped by legislative enactment on one side or by a cloture rule among coal men on the other, it is reasonable to assume that in the course of a decade, we will have both a coal program and a recognized leadership. It is most likely that the leadership will go to the man who supplies the program.

While such a quarrel is in progress with such a tremendous outcome, likely, it would be little short of a crime if Congress should attempt to forestall the natural outcome by itself endeavoring to create a leadership and to make a program by statute. But, it would be equally destructive if the present leaders in the trade should—out of fear for their continued control—succeed in enforcing their cloture rule on debate. On the contrary, while the trade is still after a program or a leader, it is the act of greatest wisdom to allow the debate to go on, free and unlimited to the end. By that means, the advocates of definite ideas will gather adherents around themselves until their following amounts to a party. In this way, we may get several parties but we will, with the formation of each, be nearer to the conclusion and the goal.

It is obvious that when the soundness of any policy has been espoused by a considerable majority of the trade it may, with propriety, be said that we have both a program and a leadership. It follows that we can get neither if debate is stopped, either by legislative action or by a cloture rule within the industry.

TESTING OF METALS DIVULGES VALUABLE INFORMATION

RESULTS OF INVESTIGATIONS in connection with metallographic testing are summarized in a report recently issued by the Bureau of Standards. The conclusions reached in studying the properties of metallic materials under various conditions are grouped under the following headings: Thermal Analysis and Heat Treatment; Mechanical Working of Metals; Microscopy and Structure; Chemical and Metallurgical Factors; Conditions of Melting.

Particular attention was given during the investigations to the subject of coating steel for the prevention of corrosion. The Bureau's experts reached the conclusion that zinc coatings furnish the best protection, deposits secured from either cyanide or sulphate solutions being satisfactory. It was found, however, that use of the cyanide method possesses the advantage of "throwing" the deposit more effectively into deep depressions or over other irregularities of surface. Satisfactory zinc cyanide plating solutions can be secured by using zinc oxide to replace part or all of the zinc cyanide formerly used, it was discovered.

The Bureau has also developed methods of obtaining platinum and some of its alloys in states of exceptionally high purity, as a result of the investigations.

COAL WAGE ARBITRATION IS SOUGHT BY EARLY GOVERNMENT ACTION

THE GOVERNMENT already has deeply concerned itself in efforts to prevent a possible stoppage of coal production in connection with the expiration of coal wage agreements next March. This is indicated by early developments in which Secretary of Commerce Hoover has played a leading part.

Realizing that next year will find the country's industries in delicate stages following the first lengths of progress in emerging from depression, Mr. Hoover has been engaged for some time in laying plans which aim to prevent any unstabilization of conditions that might be contingent to expiration of the coal wage agreements.

The major portion of his plan is devoted to provision of a platform of arbitration upon which the question may be considered.

It has been reported that some operators have given expression of their willingness to participate in such an arbitration system. A group of coal men, present in Washington in connection with the unemployment conference, met Mr. Hoover some time ago and there is reason to believe that they agreed to settle controversial questions through an intermediary agency acting with leaders of the operators and miners.

Shortly after the operators met with Mr. Hoover, administration leaders sought to obtain foundation for a working plan by securing from leaders of the miners' union an outline of their position in regard to arbitration. The Central Committee of the United Mine Workers of America was called to Washington by President Harding and, headed by John L. Lewis, president of the union, it engaged in a protracted conference with the President, Secretary Hoover and Secretary of Labor Davis. The object sought by the administration was not immediately accomplished. The union officials could not give word on their proposed stand because of a resolution adopted at the Indianapolis convention of the union.

At the conclusion of the conference, Mr. Hoover issued the following statement.

"Owing to the situation of the miners' leaders as the result of the decision of the Indianapolis convention to defer discussions of the new agreement until after their February meeting, it has been impossible to come to any immediate arrangement.

"The conference with the miners was in sequence of discussions carried on with representatives of the coal operators under the auspices of the unemployment conference. The desire of the conference was to determine if steps could now be taken that would minimize the danger of stoppage in coal production at the expiration of the national agreements at the end of March by a prior undertaking to arbitrate any ultimate differences."

While the first general opinion might logically enough be inclined to the thought that the Commerce Department is operating beyond its sphere in laying plans in this connection, it is being pointed out that the efforts to lay plans for arbitration are an outcropping of the unemployment conference and, in a larger way, a part of the work by which Mr. Hoover's organization is undertaking to master the return of normal industrial conditions, and to provide assurances that they will remain on the planes which they gain following the recovery period.

Those who are in close touch with the situation are of the opinion that better progress will be made by treating the wage agreement subject in this wider scope than if it were to be handled as a mere matter of adjusting wages at a particular point.

SENATORIAL PRESENTATION OF FACTS URGES RELIEF FOR GOLD MINING INDUSTRY

PRESENTING BASIC STATEMENTS in favor of relief of the gold industry through the medium of the McFadden bill or similar legislation, Senator Tasker L. Oddie, of Nevada, has answered objections raised by Secretary of the Treasury Mellon. In a letter to the cabinet member, he analyzes the statements which Mr. Mellon advanced in support of his contention that necessity for this type of relief has passed. The Senator quotes reports of the Unemployment Conference to show that depression in the gold industry still exists, and lays emphasis upon the failure of commodity and labor prices to readjust themselves to the point where gold mining may once more become a gainful occupation.

Senator Oddie's support of the gold relief legislation brings to a focus the views of twenty-two senators who recently addressed a resolution to Secretary Mellon, asking that he outline his stand on the subject.

Answering the Secretary's statement that "it is difficult in these circumstances to see what special equity there is in your claim for a premium when costs are high," Senator Oddie says:

"The equity lies in the fact that in the case of the gold mining industry the die was cast—the investment was made. The loss of this investment was occasioned by the shutting down of the mines which was forced upon the industry because of a lack of governmental foresight in promptly providing a means for compensating the loss in purchasing power of the gold ounce in accordance with the index number; whereas, the investment in the jewelry business would not have been impaired in the least by payment of the excise imposed upon the manufacture of gold articles which could have been readily passed on to the consumer, as provided for in the legislation upon which your opinion has been asked."

"I fully appreciate that over a period of many years there may be a remote possibility that the purchasing power of the 1913 dollar will have returned," says Senator Oddie, "but I cannot conceive the possibility that the purchasing power of the dollar, in terms of material and labor utilized in the gold mining industry, will return in time to save the ore reserves from loss through caving in of mines which have been shut down and filled with water during the period 1916–1921." This statement is made in answer to Secretary Mellon's expression of opinion that as commodity prices return toward normal and costs become stabilized on a lower level, relief should gradually come, in the ordinary course of events, from the difficulties of which the gold mining industry has been complaining.

The wholesale price index number of the Bureau of Labor Statistics has been recently ascending over the low point established in June and still remains over 50 percent above the 1913 level. This condition is emphasized in the letter to Secretary Mellon, which reasserts the fact that "as the price level increases the economic pressure upon the gold mining industry will correspondingly increase."

Recent reports concerning the present conditions of the industry are quoted to lend stress to the necessity for relief.

The United States Geological Survey in the "Mineral Resources of the United States for 1920" makes the following comment with reference to the condition of the gold mining industry:

> "Gold mining continued in a greatly depressed condition, and the value of the country's output decreased to less than $50,000,000. Less than half of the gold mines of the country were active and some of the large mines were closed permanently."

Based upon reports of gold production for the first six months of 1921, a total production for this year will probably not exceed $40,000,000, a decrease of 20 percent from that of 1920. The President's Conference on Unemployment through its Committee on Emergency Measures in Mining recommended on October 13, 1921, as follows:

> "Gold mining suffers from the excessive cost of supplies and other items, and the value of the gold output being fixed as against material advances in cost has operated to restrict the employment of labor in gold mines."

"These are not signs of improvement but rather of further depression in the gold mining industry," says Senator Oddie.

"In the testimony of Governor Benjamin Strong of the Federal Reserve Bank of New York before the Joint Agricultural Commission of the Senate and House of Representives he stated that $100 thousand in gold in the bank reserves of the Federal Reserve System was equivalent to about $1.8 millions in terms of credit in the country banks of the nation. The $292 millions of "new gold" which was withdrawn from the monetary reserve for industrial consumption during and since the war would have been equivalent to an extension of credit to the country banks of $5.25 billions. Had this gold been available in September, 1920, a less restrictive policy of deflation could have been adopted with safety, which would not have imposed the burden that the agricultural and other industries of our nation have been forced to bear.

"The decline in our governmental revenue receipts is due largely to the falling off in export trade," he continues, "and yet the gold policy enunciated in your letter and which has been in effect both during and since the war has intensified the difficulties with which the Treasury Department is now confronted.

"Had it not been for the loss in our decreased gold production over this period, which has been minimized by the jewelers in their testimony before the Committee on Ways and Means of the House of Representatives, in their desire to guard their interests from the payment of this infinitesimal tax, an additional credit of $2,000,000,000 could have been available to our country banks, making a total credit which might have been extended by a more conservative gold policy of $7,250,000,000. This amount of credit was eliminated through the wasteful practices of our war and post-war periods. The consequences of this policy have not yet ceased to exist.

"In your communication you refer to the fact that the market for gold is international. There could, therefore, have been no embarrassment to the industrial consumers of gold if they had been forced to purchase their gold in the world's markets instead of having been allowed to remove it directly from the monetary reserve which serves as the basis of our credit and currency.

"I note particularly the paragraph in your letter which begins:

> "'The tax which the bill would impose upon the use of gold for non-monetary purposes, while in form a tax, would in fact put restrictions upon the free convertibility of the currency into gold. If gold could not be used except under heavy penalties, for anything else than money, its value would be impaired and there would be, in effect, a clog on the converti-

bility of the currency. One dollar in paper currency, in other words, would not buy one dollar's worth of gold, if the gold was to be used in the arts.'

"It is difficult for me to understand how such a conclusion could be drawn when the provisions of the bill expressly state that the tax proposed is to be collected only at the time of the sale of the finished product. This tax is, therefore, not imposed upon the bullion to be sold by the Mint to the industrial consumers of gold. Under the provisions of this bill the industrial consumers continue to obtain gold from the Mint at the monetary price which now prevails. There is no relation now between the sale price of a manufactured article containing gold to the cost of the raw material contained therein. Why, therefore, should the addition of this tax which would be a small fraction of the sale price of the gold article affect the free flow of gold or its convertibility?

"In France, since 1873, a special excise has been imposed upon the sale of manufactured articles containing gold. No disturbance to the free flow of gold or to the French Monetary System has ever resulted. This tax in June, 1920, was greatly increased. No difficulty has been experienced in France in collecting this tax and there should be no difficulty in collecting the tax here as it can be readily measured by the amount of gold contained."

A close analysis is made of Secretary Mellon's statement that "the monetary gold stock of the world has increased during the past ten years, it has been estimated, by as much as $2,000,000,000."

It is shown that the ratio of gold to notes in the fifty countries for which figures are available has dropped from 66.8 percent in 1914, to 9.3 percent in 1920, the point being emphasized that existing obligations arising from the need for currency redemption and the payments of debts and interest have eaten so deeply into the monetary stock that the increase cited by Mr. Mellon is minimized as far as actual stock value is concerned.

In substantiation of his statement that "the world stands bankrupt today for lack of gold," Senator Oddie invites attention to the fact that experience gained since the termination of the war indicates that people will desire to return to pre-war monetary customs and that the preference which has developed for the use of paper notes will be replaced by a demand for the actual circulation of the gold. It is pointed out that the banks are expected to discourage the use of gold as currency and that this would seem to be evidence that there is by no means confidence that the people will not demand gold in circulation whenever the reserves are released.

In stressing the far-reaching influence which a small amount of gold exerts over the vital instrument of credit under the present banking system of the nation, it is stated that benefits in the way of a moderation of interest rates and lessening of credit tension which followed the additions of newly imported gold may be gained by a like amount of domestically produced gold, and without any danger of such a reduction of export trade as follows overbalance by the transfer of gold from other countries to the United States.

"The United States should occupy the position of trustee for this newly acquired gold," says Senator Oddie. "A redistribution of this gold is a prerequisite to restoring financial poise to the world and under such a policy we should not permit that gold to become the basis of our credit and currency structure as it could not then be released for export without forcing a rapid deflation." Federal Reserve reports are quoted to show that some of this newly acquired gold has already been made a part of our currency structure, although it must eventually find its way across the seas if international exchange stabilization is to be effected.

Failure to redistribute this gold among the nations from whence it came in order that they may appreciate their currencies to the gold standard level will force them to adopt some other unit, not as a matter of convenience but as a matter of necessity. Our continued position as a creditor nation is dependent upon the maintenance of the gold standard, it is emphasized.

Had not "new gold" been withdrawn from the monetary reserve for industrial consumption it would have been sufficient to more than replace the amount of gold lost by excesses of exportations over importations of gold into the United States during 1919, Senator Oddie declares. There would have been little need for putting into effect the drastic deflation measures adopted by the Federal Reserve Board as a last resort to preserve the gold reserve ratio from declining below the legal minimum prescribed in the Federal Reserve Act.

"The enactment of this proposed legislation will protect the public by insuring the quality of the article sold and will enable the public also to appraise the cost of the workmanship as well as the cost of the raw material," says Senator Oddie. "The provisions of the McFadden Bill impose no penalty on the purchase of foreign gold in this market to be used for non-monetary purposes, as the industrial consumers would continue to purchase their gold from the United States Mint at the free gold market price. For this reason a speculative market for gold could not develop.

"Furthermore, the cost of the premium provided in this legislation would not have fallen on the general public as a tax burden but would have been borne directly by the consumers of luxuries who have, it is presumed, the ability to pay.

"On the other hand, the government sold during this entire period of high prices $292,000,000 of 'new gold' to the industrial consumers at the pre-war price. In effect, is this not subsidizing the jewelers and other industrial consumers?

"The objection to employing artificial means to compensate for the lost purchasing power of the gold producer's dollar is answered by recalling that any price fixed by the government is artificial in character.

"The production of gold throughout the world is declining, and unrestricted industrial consumption for years to come would be so large as to reduce the amount available for monetary purposes. This condition must be remedied if the gold standard is to survive this period of readjustment. The industrial gold consumption of the world should, therefore, be forcibly curtailed and gold production stimulated. Both of these conditions should be satisfied by an equitable adjustment in the cost and price equation between the producer of new gold and the industrial consumer. The McFadden Bill provides for such an adjustment.

"This constructive gold policy put into effect at this time will safeguard the maintenance of the gold standard. Such a policy is also prerequisite to a more rapid revival of our domestic industry and export trade upon which the full time employment of our people and the prosperity of the nation depend."

Summing up the situation and outlining the manner in which a tax upon the industrial use of gold would effect a financial stabilization, Senator Oddie says:

"I am firmly convinced that if our gold reserve had been protected against this extraordinarily heavy industrial drain and a moderate deflation begun within a year after the Armistice, our present difficulties of depression would not only have been minimized but might never have occurred."

A BUG'S-EYE VIEW OF WASHINGTON

By Ira L. Smith

THE CURTAIN IS RISING on the greatest event of its sort ever shown on this or any other stage. The brains of the world are all set to get knotted up in efforts to chop off a slice of the millenium and parcel it out among the folks of our planet.

And may plans for armament limitation have more power, since their success will probably mean that we'll be able to toss the tax collector a thin dime or so and get away with it.

Grouped around the conference table, the delegates will never fail to be aware of the power of the pocketbook that balks eternally against being flattened out by dumping its contents into the maw of taxation.

Folks the world over are scratching and fidgeting around in their efforts to get enough shekels together to appease the governmental revenue collectors when they yelp at the door. The natives generally are aware that vast portions of their increment are used to sustain the armies and navies that wait for a grand duke to get shot or for some other excuse to present itself in order that their claws of steel may start to dig.

In days of yore, when men fared forth in tin suits to do their battling, the overhead expense was a mere infant. If a knight got his metal uniform punched, the chances were that he'd cash in his checks at the time, while some brother fighter would salvage the hardware and get it repaired at the nearest blacksmith's at little or no expense to anybody.

Medieval sea-fighting was just about the same sort of thing. A lot of fun and not much financial outlay. Ships rolled out over the briny deep, their captains made faces at each other, and then the whole thing was over. Even when they did get to the point where they used guns, their armament was about as effective as a Fourth of July cap-pistol without the caps.

But, dearie! How things have changed now!

It costs more to stage a war than to keep all the women of the world in clothes for an equivalent period.

Cable tolls on a message across the sea carrying a declaration of war are more costly than a whole year of fighting in old King Arthur's time.

All the ships of Admiral Olympus, or whoever ran the Greek navy back in the days when beefsteak sold for five cents a pound, didn't cost as much as one shot of the barking bunches of steel that they've been aiming at each other in more recent years.

"And who has to pay for it all?" queries the plain folk in general. Then they toss the answer back at themselves: "We do."

Whereupon old John J. Realization comes galloping along, opening a multitude of eyes in observation and mouths in protest.

So it has come to the place where the appeals that the constant enlargement of the machinery of war be shackled are growing. For the butcher, the baker and the rest of the gang have raised their shouters toward the high skies, begging that the burden of taxation be lightened.

Idealists have bucked war verbally for ages. Way back yonder when antedeluvians waged battles against each other, scribes who pounded out copy on stone parchment probably bespoke themselves somewhat on this order:

"Knowest not, oh chieftains, that breastplates and girdles and things are not to be found for sale at the bargain counters. And windows, broken by stones from the sling-shots of the enemy, must be replaced 'ere winter comes and causes our bones to rattle like the ice in a Scotch high-ball. Pray refrain from these unseemly pranks and let us have peace."

But fighting was just as much a prime element as eating in the make-ups of our far-distant ancestors. Perhaps it held more attraction for them, for was it not said of Hiram Hatchet-jaw, Chief of Staff of a Paleolithic army, that "He'd rather fight than eat."

It seems that the logic that always runs around to a greater or less degree wherever civilization hangs its derby is soon to have its say, howsoever.

Instincts must grow better when educational processes continue their quiet work through successive generations that pass along their good thoughts to the kids, who in turn moralize a lot before they give jobs to grave-diggers.

The whole idea of seeking limitation instead of complete disarmament is all to the roses so far as practicality is concerned. Even now, despite all our civilization, we are inclined to double up our fists and stick out our tongues occasionally, and any plan to send all our fighting tools to the international junk shop would be useless at present.

Wading along this channel brings to my slip of a mind the story of how an idealist got all bungled up in trying to hasten things along, without stopping to realize that educational foundations are necessary if ideals are to be obtained.

This man was handed the job of Commissioner of Safety in a western city where he had been holding forth as city editor of a morning paper. Old Dame Fortune is the only party who can explain how he came to get this berth, what with his Windsor tie and a temperament to match it, but at any rate there he was—boss of a lot of bluecoats.

So it came to pass that he ascended rapidly into the throne occupied by the chief mogul over all the cops, and so it also came to pass that he slid down out of the throne with all the speed of a choice bit of greased lightning.

The cause for his skidding was that he figured his high ideals were contagious and that, with his clean-cut morality at the helm of the city's guardianship, each thug would tie bits of baby ribbon to his trusty gun and hang it on the family mantle-piece.

So he issued an order that the Irish horde forming the city's police force should forthwith fare forth at night without their shillalahs.

The next morning found the alleys of the town piled sky-high with minions of the law who had been firmly tapped with so many blunt instruments by gents who refused to be reformed by the spectacle of policemen running at large without clubs.

Now, if the temperamental boss of the gang had substituted anything—even candy canes—for the night sticks, he would have had a chance to edge his idealism in sideways. For all anybody knows, the time might have arrived when the crooks, through gradual education, would have made love to policemen.

MINE MOTOR APPROVAL PROCEDURE

PROCEDURE for establishing a list of permissible electric motors for operation in gaseous mines is covered in a publication, known as "Schedule 2-B," recently issued by the Bureau of Mines. The Bureau has announced that it is prepared at its Pittsburgh Station to conduct tests of motors and their electrical accessories designed for mining purposes with a view of determining their permissibility in gaseous mines or dust-laden atmospheres.

WORLD'S COAL PRODUCTION SHOWS REACTION TO FEVERISH DEMAND

THE WORLD'S PRODUCTION of coal during the first six months of 1921 has shown a reaction in striking contrast to the feverish demand of 1920, heavy decreases reflecting the prostrated condition of world trade and industry. The British strike, of course, was a large factor in the curtailment of output.

Reports compiled by the Geological Survey place production for the first half of this year at approximately 525,300,000 metric tons, of which 42.23 percent, or 221,798,000 tons, was produced in the United States. These figures indicate an annual world production rate for 1921 of 1,050,000,000, which falls 250,000,000 tons below the 1920 total, and shows the output to be far below that of any year of the preceding decade.

"Prices have collapsed, and sea-borne coal trade has fallen off," says the Survey's report, which adds that these conditions are having a profound effect upon the volume of business offered to the world's shipping.

The following table summarizes the information received by the Geological Survey up to and including October 6, 1921, and is subject to revision as final official figures are received. Lignite and brown coal are included; where possible, they are given separately. The world total of 525,300,000 includes estimates for those countries, representing about 8.5 percent of the whole, for which no information was available. The figure used for these unknown countries was one-half the output of the latest year for which figures were obtainable, usually 1920.

PRODUCTION OF COAL IN PRINCIPAL COUNTRIES OF THE WORLD, JANUARY – JUNE, 1921.
(In metric tons of 2,204,622 lbs.)

Country	*Production*	*Percent of total production*
NORTH AMERICA:		
Canada	6,153,456	1.18
United States	221,798,000	42.23
Other Countries	(a)	0.06
SOUTH AMERICA	(a)	0.13
EUROPE:		
Austria—Coal	65,320	0.24
Lignite	1,181,920	
Belgium	10,624,740	2.03
Czechoslovak Republic—Coal	b/ 6,100,000	3.61
Lignite	b/ 12,900,000	
France—Coal	13,467,125	2.64
Lignite	371,930	
Germany—Coal	c/ 70,886,889	24.88
Lignite	c/ 59,787,867	
Poland	b/ 3,500,000	0.67
United Kingdom	55,349,730	10.54
Other countries	(a)	2.83
ASIA:		
Japan	b/ 12,800,000	2.44
Other countries	(a)	4.11
AFRICA:		
Rhodesia	242,809	0.04
Union of South Africa	b/ 5,100,000	0.95
Other countries	(a)	0.01
OCEANIA	(a)	1.41
TOTAL	525,300,000	100.00

(a) Estimate included in total. (b) Estimated for the six months' period from actual reports for the first three or four months. (c) Includes Saar and Upper Silesia.

Discussing the probabilities for the last half of the present year, the Survey's experts state that "it is clear the output will be larger than in the first half, mainly because of resumption of operation by the British collieries."

Despite the promised increase, there is little hope that the total for the year will likely exceed 1,100,000,000 tons. Should production fail to reach a plane appreciably above this mark, it will have dropped back to the level of 1909. The relapse to 1909 production is even more significant when it is remembered that the world's consumption of coal normally increases by leaps and bounds and should now be far above the figure for the earlier year.

"Of the principal coal-producing nations, Germany made what may be regarded as the best showing for the six-month period," says the report. Production of bituminous coal in all districts, including Upper Silesia and the Saar basin, was at the rate of 141,000,000 tons per year, far short of pre-war performance, but the output of lignite showed an increase over 1913 amounting to almost 30,000,000 tons a year. Whereas in 1913 the German Empire supplied only 22 percent of the world's production of coal and lignite, its contribution in the first half of 1921 was 25 percent of the whole and this in spite of the return of Alsace-Lorraine to France.

COAL CONSERVATION IN MINING URGED BY EXPERT

COSTS OF BITUMINOUS coal, recognized as a factor of vital concern to the industrial rehabilitation of the nation, may be materially reduced by the employment of certain safety measures and the adoption of improved types of mining machinery and more modern mining methods, according to a statement by J. J. Rutledge, coal mining engineer of the Bureau of Mines.

The hazard in bituminous coal mining may be greatly lessened by the prohibition of the wasteful and dangerous practice of blasting coal off the solid and substituting therefor the method of undercutting the coal and blasting it loose by the use of "permissible explosives" instead of black powder, says Mr. Rutledge.

The necessity of leaving an excessive amount of coal underground to prevent the subsidence of valuable agricultural land on the surface has often contributed to the cost of coal production. To obviate this, Mr. Rutledge advocates the purchase by the coal-mining company of the overlying land instead of the practice of merely obtaining an option on underlying coal.

An improved method for the operation of coal mining machines is outlined. It is said machines which, under the present system, undercut from 40 to 100 tons per shift, should undercut from 300 to 500 tons per shift. In coal mines having a soft bottom clay, Mr. Rutledge suggests undercutting in the clay immediately under the coal seam instead of in the lowest portion of the seam itself.

By the use of machines which combine entry driving and loading operations, feasible in coal seams of a soft nature, and by employing improved mining methods, startling results should be obtained in the way of efficiency and reduction in costs.

ECONOMIES PROMISED TO COAL INDUSTRY BY NEW MINING LABORATORY

RESPONSIVE TO A DEMAND for additional laboratory space and equipment for the carrying on of research work and instruction in ceramics and coal-washing, the University of Washington has recently completed a new mining laboratory building, which was formally dedicated on September 23rd during the visit of H. Foster Bain, director of the United States Bureau of Mines, to the Northwest Experiment Station of the bureau at Seattle. When fully equipped, the building will, in the opinion of mining men, stand as one of the best arranged and most efficient laboratories to be found in the educational institutions of this country.

The new structure is the fourth building on the university campus to be devoted solely to mining and is the seventh completed building in the program instituted at the university in 1916. It is of steel frame construction and is to be used jointly by the School of Mines of the university and the Northwest experiment station of the Bureau of Mines.

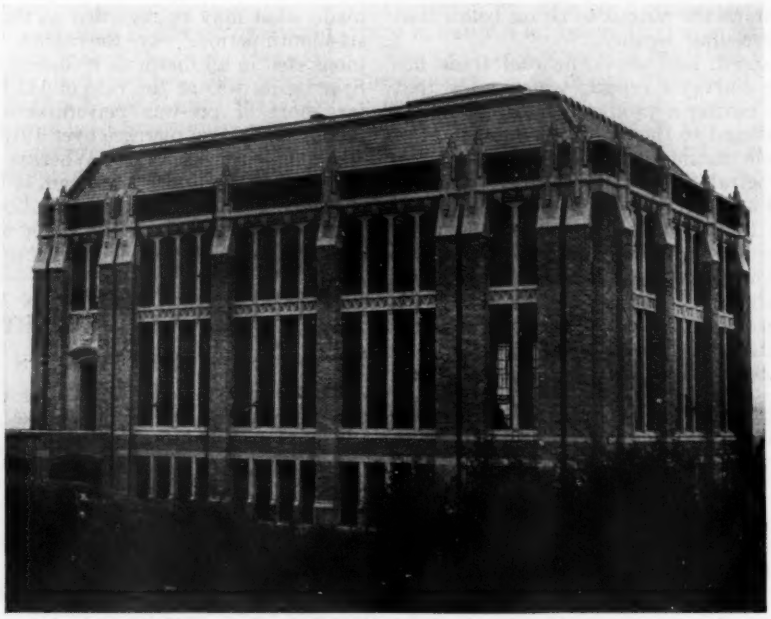
Research in the new laboratories will be directed mainly towards the problems of coal washing and ceramics. It is expected that future work in the laboratories may include studies in electrometallurgy, in order that assistance may be given to the development and use of the vast amount of potential hydro-electric power in that state. Milnor Roberts, dean of the School of Mines and presiding officer at the dedication ceremonies, told of a plan to build, at some future time, an addition to the new laboratories, which will be devoted to the study of ore dressing.

"Coal is the most important mineral resource of this state," Clyde E. Williams, superintendent of the federal experiment station on the campus, said at the dedication. "More than 50 percent of the business done is in coal. Due to peculiar geological conditions, coal deposits in this state are less easily mined and less easily prepared than in many other coal districts.

"The ceramic industry in Washington has not been developed to a very great extent. Representative clays are present in sufficient form and the Northwest can supply all the basic materials necessary to establish a ceramics industry capable of supplying the demand for clay products."

Speaking in a similar vein, Daniel Buckingham, representing the Coal Operators' Association of Washington, said that the coal industry in Washington supports an annual pay roll of $15,000,000. Washington coal veins, he said, are on a steep pitch, are usually narrow and contain a large amount of foreign matter. When this foreign matter has been eliminated and the coal prepared for market, it is just as good, he said, and cheaper than the coals which are being imported into the state.

Director Bain spoke at the dedication on the value of research, saying that nations which have ceased to make investigations have grown stagnant. He said that lowered building costs can result only from lowered production costs and spoke of a hope that the research work which will be carried on in the new laboratories jointly by government and college engineers will bring about lowered production costs. Congressman Marion E. Rhodes, chairman of the House of Representatives' mines and mining committee, said that the federal government should, in his opinion, stand ready to assist in the development of resources as well as in the conservation of resources.



NEW MINING LABORATORY BUILDING

This addition to the University of Washington is to house one of the finest mining laboratories in the world, where extensive studies seeking to evolve economies in the coal industry will be carried on

The laboratory was formally dedicated by Dr. Henry Suzzallo, president of the University of Washington.

"Whatever we do at the University of Washington," he said, "we are going to do as well as any institution in the United States. The standards of scholarship have been constantly raised until, at the present time, no other educational institution in the United States has as rigid standards of scholarship as this university."

The prime object of coal washing studies at the Northwest experiment station of the Bureau of Mines is to devise coal washing methods that will prevent loss of good coal in the process of removing impurities and to devise methods which will easily and economically remove the dirt and render the coal suitable for commercial purposes. In working out this problem, co-operative studies have been made with twelve coal mining companies and gratifying results have been obtained. The plants at which these studies have been made were selected as being the most representative within the district in which each is located and as being the most modern and flexible, thus offering the greatest opportunity for experimental work.

The principal results of these studies have been to save large quantities of good coal formerly wasted and to improve the quality of the washed coal.

Study in one instance was made of enormous refuse piles to which, it was observed, a large amount of good

coal was going in the washery refuse. Inasmuch as the coal from this mine, when properly cleaned, is an excellent coking coal and therefore a particularly valuable product in that district, it was considered worth while to study the feasibility of retreating these piles to recover the good coal. Although these tests are not yet completed, it has already been demonstrated that at least twenty percent of the material containing ten to eleven percent ash may be recovered by crushing to pass one quarter inch and washing on suitable coal washing tables. Based on an estimate of two million tons of material in these piles, it follows that, as a result of these tests, approximately 400,000 tons of excellent coking coal have been made available from a waste product.

In another instance, studies were made of a sludge pile, representing ten years' accumulation and estimated to contain approximately 200,000 tons of material. Samples from this pile were tested first by the float and sink method, a purely laboratory method, and then with an experimental coal washing table. The results of these tests showed a recovery of 70 percent, by weight, of washed coal containing 17 percent ash, out of raw material containing between 27 and 30 percent ash. It was later found possible to recover approximately 80 percent of washed coal containing not over 15 percent ash, indicating that approximately 160,000 tons of valuable fuel were made available from material formerly considered a waste product.

Lack of suitable equipment and facilities on the university campus made it necessary, in the past, to conduct most of the coal-washing studies at the plants of the different companies. This deficiency has now been eliminated and the experimental work will not be carried on in the new mining laboratory.

The new laboratory is being equipped to handle efficiently any quantity of coal up to a carload lot. Coal may be delivered in railroad cars onto the campus and to within 150 feet of the building. Only the most modern and efficient expermental equipment is being installed.

Coal may be delivered to the building by wagon or auto truck. On entering the building on the ground floor, it may either be weighed, sampled and crushed, or when desirable, screened to remove all material coarser than 2½ or 3 inches diameters. The oversize may be sorted on a picking table into two or more products, and these put into separate bins which are flush with the floor and discharge into a coarse crusher in the basement. After being crushed to 2½ inch size or smaller, these products may be mixed back with the undersize from the screen and elevated by bucket elevator, or they may be kept separate and elevated to any floor above on the frieght elevator.

The undersize from the screen drops into a 30-ton raw coal bin from which it is drawn and elevated by bucket elevator to the top of the building. There it discharges onto an automatic sampler and then onto a balanced 4-deck shaker screen with interchangeable screens. The different sizes obtained from these screens are discharged into portable buggies, and, after weighing, may be delivered to any of the eight 5-ton bins suspended from and flush with the top floor. From these bins, the coal may be drawn by gravity to any one of the various experimental machines on the main testing floor, which is immediately above the ground floor. The various products from the testing machines on this floor may be delivered by gravity to any one of a number of tanks on the ground floor.

The list of testing equipment on the main testing floor includes two coarse-coal jigs, semi-commercial size, one movable-screen type and one fixed screen type; two fine-coal jigs, semi-commercial size, one Harz or plunger-type jig and one pulsator-type jig; two full-size coal-washing tables of different types; one or two experimental-size coal-washing tables; also, several small pilot or laboratory jigs and tables. There will also be one or two experimental froth flotation machines on this floor for testing coal. The mechanic's tool and work room is also on this floor.

On the top floor, in addition to the screens, elevator, and sampler, will be two 1000-gallon water tanks, storage space for screens, pipe, and samples, scales and other testing equipment. Separate rooms are located on the third floor for float-and-sink work, chemical analyses, calorimeter tests, laboratory classes of the School of Mines in metallurgical fuels and two small offices for the Bureau of Mines and School of Mines staff. Space is also provided on this floor for by-product coking tests, and for a hydraulic classifier of the Dorr type.

The main sampling floor and sample-grinding room are located on the ground floor. Ample space is also provided on this floor for a centrifugal dryer, suction filter, air-drying oven, steam coil dryers, scales and the necessary settling tanks. The building is sixty feet wide and eighty feet long and approximately 53 feet high above the ground floor.

The Washington State Geological Survey has collected samples of clay and studied deposits, while the ceramic department of the school of Mines has tested 274 samples according to the standard methods of testing of the American Ceramic Society. Almost every variety of clay was found in the state and it was demonstrated that the Pacific Northwest can become virtually independent for ceramic materials.

The ceramics portion of the laboratories will be equipped with apparatus which will make possible virtually all the testing work for structural wares, refractories, pottery, enameled metals, abrasives, cements, limes and plasters and thermal insulators. The ceramics portion, as well as the coal-washing part, is built according to plans designed jointly by the staff of the School of Mines and officials of the federal Bureau of Mines.

FUEL ECONOMIES FORM CHIEF AIM OF CERAMIC AGREEMENT

THE CO-OPERATIVE agreement between the Bureau of Mines and the four leading heavy clay products associations for the investigation of kiln processes has been completed. The program under which the agreement will operate will have as its main aim the effecting of fuel economies in burning processes. It will also include efforts toward increasing efficiency and minimizing breakage losses.

All laboratory work to be carried on under the agreement will be done at the Ceramics Station of the Bureau, located at Columbus, Ohio. Several additional experts have already been assigned to the station's staff in anticipation of the large amount of work to be undertaken.

It is expected that the first reports of the investigation's results will not be available before at least six months, but as improved methods of operation are brought to light, they will be adopted by the members of the four associations, producing one half the output of the ceramic industry with a valuation of $75,000,000 annually.

CENSUS BUREAU ISSUES STATISTICAL REPORT ON THE MINING INDUSTRIES

RESULTS OF THE 1920 CENSUS of mines, quarries and wells, covering 1919, have been announced by the Census Bureau, furnishing statistics of the number of enterprises, number of individual operations carried on, average number of wage earners employed, total horse power used, and value of products for the producing enterprises in the mineral industries.

These statistics cover only enterprises that were productive, with an output valued at more than $500, or, in the case of bituminous coal mining industry, amounting to more than 1000 tons of coal.

The term enterprise as used in this summary represents one or more mines, quarries, and wells or groups of wells or natural-gas-gasoline plants, all within the same state, operated under a common ownership or unified control, and for which a single report was secured. The enterprise is further defined as being limited to a single mining industry.

The statistics on power used represent the total horsepower of prime movers used by the enterprise plus horsepower of other equipment, principally electric motors operated by power purchased. The figures represent rated capacity of engines, motors, etc., and not the amount of power in actual daily use.

CENSUS OF MINES AND QUARRIES, SUMMARY FOR THE UNITED STATES, BY INDUSTRIES: 1919

	Enterprises	Number of mines, quarries, or wells	Wage earners (average number)	Power used (horsepower)	Value of products
All industries	21,280	.....	981,560	6,723,786	$3,158,463,000
Fuels					
Coal:					
Anthracite[1]	254[2]	534[3]	147,372	899,783	$364,084,000
Bituminous	6,636	8,316	545,798	2,155,412	1,145,977,000
Petroleum and natural gas[4]	9,814	260,673[5]	93,205	1,821,342	931,793,000
Metals					
Iron ore	290	472	45,741	370,869	218,217,000
Copper[6]	195[6]	226	43,717	523,591	181,258,000
Gold and silver:					
Lode mines[6]	740[6]	799	15,436	149,680	58,832,000
Placer mines	112	132	1,380	35,632	9,368,000
Lead and zinc[6]	432[6]	473	21,884	229,541	75,579,000
Manganese	35	37	909	5,800	2,188,000
Quicksilver	26	26	748	2,607	1,803,000
Rare metals[7]	22	22	633	3,544	1,725,000
Stone					
Basalt	163	174	3,336	37,307	9,657,000
Granite	358	381	8,049	55,674	18,279,000
Limestone[8]	895	925	22,069	213,717	52,943,000
Marble[8]	48	62	1,732	15,628	4,397,000
Sandstone	255	276	4,287	33,869	10,684,000
Slate	101	104	3,513	20,613	5,720,000
Miscellaneous					
Abrasive materials[9]	34	34	317	1,748	721,000
Asbestos	10	11	146	420	249,000
Asphalt	9	12	324	648	749,000
Barytes	89	98	919	3,029	1,592,000
Bauxite	10	15	738	2,507	2,190,000
Chromite	15	16	31	136	105,000
Clay[10]	344	349	5,442	21,218	10,053,000
Feldspar	30	32	349	1,782	584,000
Fluorspar	54	72	1,124	7,138	3,334,000
Fullers earth	9	9	824	2,538	2,019,000
Graphite	21	24	419	6,410	869,000
Gypsum	47	48	2,191	15,032	6,805,000
Magnesite	11	11	448	2,540	2,169,000
Mica	65	69	448	803	607,000
Millstones	11	11	37	220	64,000
Mineral pigments	23	23	185	1,630	480,000
Phosphate rock	48	69	4,373	49,639	10,300,000
Pyrite	17	18	1,172	7,338	2,408,000
Silica	25	30	177	2,057	404,000
Sulphur	4	4	1,129	15,291	17,935,000
Talc and soapstone	28	30	958	7,053	2,302,000

[1] Pennsylvania only

[2] Operating units or "collieries" embracing mines and breakers, also washeries and river dredges.

[3] "Plants" embracing 374 mines, 79 washeries, and 81 dredges but not counting 245 breakers operated in connection with mines.

[4] Includes natural-gas gasoline: 1,117 plants.

[5] Productive petroleum and natural-gas wells, December 31, 1919.

[6] Includes reduction mills operated in connection with and independently of mines, and operations on old dumps and tailings.

[7] Includes antimony, molybdenum, tin, titanium, tungsten, uranium and vanadium.

[8] Not including enterprises producing limestone for their own use at the quarries in the manufacture of lime.

[9] Includes enterprises producing emery, garnet, pumice, tripoli, diatomaceous earth, stone for hones, scythestones, whetstones, etc., and tube mill pebbles and liners.

[10] Does not include enterprises producing clay for their own use at the mines in the manufacture of clay products.

BUREAU OF MINES INVESTIGATIONS COVER WIDE RANGE

WIDE RANGES of activity and high value to various branches of the mining industry are indicated in a summary issued by the Bureau of Mines, covering its investigations that are now under way.

The Bureau is conducting an investigation in the Nevada gold mining fields of the use of gunite in metal mines. The possibility of the cement gun being used in the preventing or minimizing of rock bursts in deep metal mines is being given attention.

Employing co-operative funds furnished by the State of Missouri, an investigation relating to the electrothermic metallurgy of zinc is under way at the Mississippi Valley Experiment Station of the Bureau at Rolla, Mo. The physics and chemistry of the condensation of zinc vapor will be studied especially.

Encouraging results have been obtained at the same station in the flotation of sludge table concentrates from the Wisconsin zinc district. Work is being done on the distillation and fractionation of certain crude pinewood oils in the hope of finding a substitute for the oil used in the Wisconsin zinc flotation work.

An inspection of the mills in the Missouri-Kansas-Oklahoma lead and zinc district is being made by engineers of the Bureau of Mines with a view to determining their general procedure and gathering data as to different phases of the milling practice that may be most amenable to improvement.

At the North Central Experiment Station in Minneapolis investigations regarding drill steel and carbon steel and the reduction of iron oxide are under way. At this station, the problem of the flow of heat from the walls into the charge of a by-product coke oven has been solved analytically, and the rather tedious numerical solution of the values of the Fourier's series involved is nearly complete.

Results of work done at the Northwest Experiment Station in Seattle, Wash., indicate that fine grinding of sponge iron and wet magnetic concentration give a higher recovery of metallic iron than dry magnetic concentration on either coarse or fine material and that dry magnetic concentration is not improved by fine grinding. In melting sponge iron in a direct arc furnace using amorphous carbon as a carburizer, 2½% carbon is readily reached with a practical limit of 3%. Using graphitized carbon as a carburizer, 3% carbon is readily attained and 4½% is easily possible.

COAL STOCK DATA TO BE COMPILED UNDER NEW SYSTEM

REPORTS of coal stocks held by public utilities and other leading consumers are to be issued at regular intervals of probably sixty or ninety days by the Bureau of the Census working in co-operation with the Geological Survey. This plan is the result of several conferences held between representatives of the two bureaus and insures an added efficiency in handling statistics of this type through the enlarged machine rendered available in the census-gathering organization, with the experience of the Survey's experts supplying the more technical needs of the work.

Under the new system, details of which still remain to be worked out, it is proposed that the Bureau of the Census collect data from practically all the larger consumers excepting the public utilities plants, from which the Survey will continue to gather statistics as it has in the past.

OIL AND GAS TAX REGULATIONS IN REVISED COMPILATION

REALIZING THAT A MULTITUDE of revisions have radically changed the original revenue statutes applying to administration of internal revenue regulations in their relations to the oil and gas producing industries, the Bureau of Internal Revenue has issued a revised manual which incorporates all changes made to date in the original provisions affecting these industries.

Since the publication of the original manual, a number of Treasury Rulings have been rendered; much additional information regarding the estimation of oil reserves has been collected, studied and prepared for publication; also a large amount of data collected and tabulated relating to the number of wells drilled, thus establishing a dry-hole hazard for various districts and fields.

On account of the demand for this additional information, the Revised Manual has been issued to assist the taxpayer of the oil and gas industry to prepare his federal tax returns correctly and expeditiously. Although endeavor has been made to anticipate all questions that may be asked regarding the law and regulations, and the latter have been amplified when it was deemed necessary to obtain the desired result, it is recognized that such a manual is only general and cannot cover all information gathered by engineers, geologists and other technologists, the object being to establish a basis for arriving at valuation, depletion and depreciation in connection with the oil and gas industry.

Records of production of thousands of properties scattered throughout all fields in the United States were carefully classified and studied by experienced engineers with the result that average future production curves and tables are available for practically every producing district in the United States.

MINE TIMBER PRESERVATION

CONCRETE SUGGESTIONS for preservation of mine timbers have been sent broadcast by the Bureau of Mines following a series of intensive studies in which it has been engaged with the co-operation of the Department of Agriculture's Forest Products Laboratory.

Mine costs may be substantially reduced, says the Bureau, if careful attention is paid to the seasoning and peeling processes. Seasoning timber increases the strength and durability; decreases the weight; protects from insects and decay, and makes the timber more easily susceptible to preservative treatment. Peeling lays the basis for the same practical results.

GOLD AND SILVER PRODUCTION DROP SHOWN IN FINAL FIGURES

PRODUCTION OF GOLD in the United States during 1920 was 2,476,166 ounces, valued at $51,186,900. Silver production for the same period was 55,361,573 ounces, valued at $60,801,955, the average valuation of $1.09827 being used in securing the total. These are the final figures issued by the Bureau of the Mint, working in co-operation with the Geological Survey.

Reductions are indicated in production of both gold and silver as compared with 1919, the differences being $9,146,500 in value of gold produced and 1,320,872 ounces of silver.

RESEARCH WORK IN SMELTER OPERATIONS

Interest for the mining fraternity is held by this statement of scientific facts covering research work at the United Verde Smelter, Clarksdale, Ariz. This article was prepared by Mr. Charles R. Kusell, metallurgist, United Verde Copper Company, and was presented as a paper before the last quarterly meeting of the Arizona Chapter of the American Mining Congress.

THE UNITED VERDE Smelter requires, like all other smelters, continual investigation of the processes in use with a view to reducing costs by reducing losses of values, fuel consumption, inefficiency of mechanical equipment, etc. Aside from these problems of improving current practice there are several worth while problems to solve in connection with the conversion of waste products to valuable by-products. The management has indulgently allowed us to investigate some of these problems and these investigations are referred to as "research work."

The first investigation of importance was the determination of dust and fume losses in the waste gases. This work was carried on in co-operation with the Western Precipitation Company and the results disclosed the avenue of escape of the hitherto unaccountable losses of values. The sum total of these values was sufficent to justify the erection of a million dollar Cotterell plant for the precipitation and recovery of the dust and fumes in the gases. This plant which is now under construction is novel in that it includes three different types of Cotterell treaters arranged in parallel: The total capacity will be 800,000 cu. ft. of gases per minute. One half of this will be handled by down draft vertical pipes twelve inches in diameter; one quarter by the Tooele straight line horizontal type utilizing sheets of corrugated iron for the receiving electrodes; and the fourth quarter by a modified Hayden straight line horizontal type using chain screens for the receiving electrodes.

The straight line treaters are cheaper to construct and it has been demonstrated at Tooele and Hayden that they are efficient on easily treatable gases such as roaster gases. It was not known how efficient this type would be on the more difficult gases from the blast furnaces and converters and as a precaution enough capacity in the pipe type was decided upon. The whole installation is so arranged that the gases may be treated separately or mixed. As the expense of building return flues to the old stack was not much below the cost of a new chimney, the latter was decided upon. It is expected that operation of this will yield much interesting and valuable data besides being a profitable investment.

Analysis of products precipitated in an experimental Cotterell apparatus revealed that a large portion of the zinc, which is present to the extent of 1 to 3% in the ore smelted, is concentrated in the blast furnace and converter fumes. As a result, research work was started on the possibility of getting the zinc out of the system in the form of some valuable by-product. After a survey of the market for zinc products, it appeared that "Lithopone" presented the greatest possibilities. Lithopone is made by precipitating a pure solution of zinc sulphate with a solution of barium sulphide, and the resulting white product is zinc sulphide and barium sulphate. It is used principally as a paint pigment, and a constituent of mechanical rubber goods, other minor uses being in the manufacture of paper, linoleum, oilcloth and window shade cloth. Although it only contains a little over 20% zinc, it has been commanding a higher price than metallic zinc or spelter. Laboratory investigation finally yielded good results in the treatment of the fume from the Cotterell process in the preparation and purification of a zinc sulphate solution and in the subsequent steps to make a good grade of "Lithopone." The quality of the zinc sulphate solution is the same as is required for the manufacture of electrolytic zinc, and with the advent of cheap hydro-electric power, a "Lithopone" plant could be converted to an electrolytic zinc plant.

The treatment of the fume for recovery of the zinc as "Lithopone" will tend to concentrate any other valuable metals, the recovery of some of which may require research work at future date. Before a commercial plant is built, it is proposed to construct and operate one on a "pilot" scale to check the laboratory results.

Another field of research which seems alluring is the problem of selective flotation of heavy sulphide ores, which are plentiful in the United Verde mine. Mineralogically the ores are chalcopyrite in a gangue of pyrite plus a little silicious material. The problem is to produce from such ores as may be too low in copper to smelt, a concentrate which shall be self-fluxing and high enough in copper to smelt profitably, and a tailing which shall be low in copper but high enough in iron and sulphur to make it worth while saving for the profitable use of a future generation.

Progress in the separation of chalcopyrite and pyrite has already been made by several other companies, particularly the Utah Con. and Granby. Application of their methods to the United Verde ore did not yield satisfactory results, which apparent inconsistency is a well known peculiarity of concentration by flotation. Therefore it was decided to make synthetic ore by mixing finely ground samples of the two minerals, which were obtained from the mine, in such proportions that in analysis it resembles the ore being investigated but was one in which the two minerals were known to be free and only mechanically mixed. By experimental trials a combination of flotation reagents was found which would make a satisfactory separation and the same group, with occasional variations, was applied to the actual ore with immediately encouraging results. Grades of heavy sulphide ore containing from 1.0% to 6 0% copper have been tested. It was found that a tailing as low as .24% copper could be obtained from the 1.0% ore while it was difficult to reduce the copper content of the tailing from the 6.0% ore low enough to equal the recovery made by smelting. In the case of ore running about 3.0% it was possible to make 90.0% recovery with a ratio of concentration of three into one, the copper in the concentrate being 8.0% and in the tailing 0.45%. The silver content of the ore was 0.65 oz. per ton, 55% of which was recovered. Experiments are still being carried on to increase the grade of the concentrate by regrinding and refloating the leaner portion of the froth. Attention is also being given to the silver which seems to be more difficult to separate from the pyrite than the copper. The gold content is so low that it is not practical to make sufficiently accurate assays to indicate the correct recovery. We think that there is very little concentration of the gold.

Many metallurgists have toyed with the possibilities of making iron and steel from smelter slags and have not proceeded with their ideas because of the lack of market for the product if successfully obtained. However, the day is surely coming when there will be a market for all the iron, great as the quantity is, that is now wasted by the copper smelters. The amount wasted in Arizona alone in normal times is sufficient to supply a large steel industry.

Molten slag containing 30 to 40% iron unencumbered with mining and transportation costs surely presents an alluring aspect, and its successful reduction seems worthy of the expense of considerable effort. When operations are resumed we hope to be able to carry out some experimental work on a large scale to reduce the iron in the slag. We have in mind the treatment of a charge of several tons of molten slag in a regular copper converter in which all of the regular tuyeres will be closed excepting just enough to permit the introduction of powdered coal and limestone by means of a limited amount of blast aid. The coal and limestone will provide the reduction agent and flux. A second row of tuyeres, which will not at any time be submerged, will supply air for the secondary combustion of the volatile matter of the coal, this secondary combustion taking place directly above the bath and serving to keep the temperature at a point necessary for the fluidity of the slag.

The manufacture of sulphuric acid has already been successfully established as a smelter by-product industry by several copper companies, but only a small portion of the available sulphur is thus absorbed. One cannot help thinking that when the energy of the Colorado becomes available, Arizona's wealth of potential resources, among which are those we have discussed, must be developed and the Southwest will be well on its way to a position as one of the busiest sections of the United States.



TAX MEASURE IS SUBJECT OF EFFORTS TO HASTEN ACTION

ENACTMENT of the revised tax bill by early November was the goal of Congress in order that the Treasury Department might be able to complete preparation and issuance of new schedules of returns early in 1922. This is made necessary because certain reductions in taxes for the calendar year 1921 are contained in the tax bill, and it will be necessary for the Department to issue revised forms of tax returns which must be turned in by the taxpayer March 15. The month was marked by changes in tax proposals resulting from conferences of senators who dissented from the taxes as agreed to by the Finance Committee. These changes will benefit the mining industry to some extent as they include the repeal, on January 1 next, of the taxes on freight, and on oil shipped by pipe line. On the other hand the minimum surtax rates are increased from 32 percent to 50 percent.

Consideration of the tax bill was delayed by discussion of the peace treaties. On October 18 the Senate ratified treaties with Germany, thereby terminating the state of war which existed since April 7, 1917.

Hearings on the permanent tariff revision bill, which were suspended by the Senate Finance Committee, on August 27, were to be resumed November 1, with representatives of agricultural interests presenting testimony. It has not yet been determined whether other schedules of the tariff will be the subject of hearings at this time as all rates are dependent upon the American valuation plan, which is being investigated by Treasury and Tariff Commission experts, whose reports are awaited by the Committee. The emergency tariff law and the dye control act, which expires November 27, will be extended until February 1, by which time it is hoped the revised tariff bill will be enacted.

Senator Oddie, of Nevada, and twenty-one other western senators are urging the McFadden gold excise and premium bill. The House Committee on Banking and Currency heard Dr. H. N. Lawrie of the American Mining Congress on a proposed conference between representatives of the United States, England, and France on stabilization of exchange.

No action has yet been taken by the House on the bill already passed by the Senate to liberalize the war minerals relief act, but this measure is on the House calendar subject to consideration at any time.

New coal regulation bills have been introduced by Senator Kenyon, of Iowa; one along the lines of the old Calder regulation bill, and the other which seeks to limit coal profits, by prescribing certain margins, above which the act would declare them "profiteering" prices.

The following bills of importance to the mining industry have been introduced since our last issue:

COAL (PROFITEERING)

S. 2558. Introduced by MR. KENYON. (To define and punish profiteering in dealing in coal.) The bill provides for a fine of not less than $100 or more than $10,000 for the first offense, and for each succeeding offense the punishment shall be by fine of not less than $1,000, and by imprisonment for the person convicted of not less than ninety days nor more than five years. Section 2 defines the word "Profiteer" as charging or exacting excessive or unreasonable prices for coal. Section 3 provides that sales of coal yielding a margin in excess of the following rates shall be prima facie evidence of coal profiteering: On any sale by any operator selling not more than one thousand tons in any month, 50 cents per ton; on any sale by any operator selling more than one thousand tons and not more than five thousand tons in any month, 50 cents per ton up to one thousand tons, and 35 cents per ton on all over one thousand tons; on any sale by any operator selling in excess of five thousand tons per month, 35 cents per ton up to five thousand and 30 cents per ton on all over five thousand tons; on the aggregate sales for any fiscal year by any operator selling less than twelve thousand tons per year, 40 cents per ton; on the aggregate sales for any fiscal year by any operator selling more than twelve thousand tons and less than sixty thousand tons per year, 40 cents per ton up to twelve thousand tons and 30 cents per ton for all over twelve thousand tons; on the aggregate sales of any operator selling in excess of sixty thousand tons per year, 25 cents per ton; on any sale other than the original sales of coal mined by operators in which the amount of the sales exceeds one ton and not more than five tons, 40 cents per ton, where the sales exceed thirty tons, 20 cents per ton; on the aggregate sales for any fiscal year by dealers other than the first sales of coal mined by operators, where such sales do not exceed twelve thousand tons per year, 40 cents per ton, where the aggregate sales exceed twelve thousand tons per year but do not exceed sixty thousand tons per year, 40 cents per ton up to twelve thousand tons, and 25 cents per ton on all above twelve thousand tons where the aggregate sales for any fiscal year exceed sixty thousand tons, 12½ cents per ton; on any royalty contract where the amount mined does not exceed one thousand tons per month, 25 cents per ton, where the amount exceeds one thousand tons per month, 10 cents per ton.

S. 2557. Introduced by MR. KENYON. This bill is to be known as the Federal Coal Act. It is substantially the same as the Calder and Newton bills, both of which have been reviewed in the MINING CONGRESS JOURNAL, with the exception that the bill includes reports to be obtained by the Federal Trade Commission as to exports of coal, and requires the Commission to obtain information on costs. It also directs the Commission to report to Congress findings and recommendations obtained on investigations conducted by it under section 4. Another new provision requires reports to the Commission by coal associations and investigations by the Commission and report to Congress concerning their activities. The bill eliminated section 10 of the Newton Bill which required licensing of operators and dealers. A new provision authorizes the Secretary of Labor to investigate wages for miners and other employes by

classes, miners' wages to be shown less operating expenses such as blasting, blacksmithing, etc.

H. R. 8421. Introduced by MR. HERRICK; referred to the Committee on Banking and Currency. This bill makes it unlawful for any private individual, firm, company, or corporation to issue tokens, due bills, coupons, or script as a substitute for money. It exempts notes, mortgages, etc., but specifically states that it applies solely to the issuance of these substitutes where the recipient is required to spend the same with the party, firm, company, or corporation, etc., issuing them, except tickets issued for transportation and sold for cash. A fine of $1,000 and imprisonment for one year are imposed for violation.

H. R. 8405. Introduced by MR. NEWTON of Minnesota; referred to the Committee on Interstate and Foreign Commerce. The bill is to be known as the Federal Coal Act and its general purpose is the authorization for gathering information respective to ownership, production, distribution, costs, sales, and profits in the coal industry and the publication thereof and to recognize and declare coal and its production and distribution charged with public interest and use. Section 2 of the bill declares that coal and its sufficient and economical production and distribution, including information as to ownership, costs, sales, and profits, are necessary to the public health and general welfare of the people and to members of Congress for the purpose of legislating from time to time respecting interstate and foreign commerce, public health, taxation, and other matters and it is, therefore, declared that same be charged with public interest and use. Section 4 authorizes the Federal Trade Commission to currently require, secure, and compile reports respecting ownership, production, distribution, stocks, investments, costs, sales, margins, and profits in the coal industry and trade from persons or corporations interested in the production, sale, storage, or distribution of coal. The information is to be classified, first, as to the investment actually used currently in the business of producing, selling, or distributing coal; second, investment in land or other items, including expenses incidental thereto, held for future use or development; and third, other investments, not directly used in the production, sale or distribution of coal, and may investigate from time to time the organization, business, conduct, practices, and management of such persons and corporations, including also any corporation acting as a holding company for or guarantor of the stock of any such corporation and including also any partnership acting in a capacity analogous to that of such a holding company, and also the organization, business, conduct, practices, and management of owners of coal lands, and report its findings and recommendations thereon to Congress, and shall from time to time investigate and report as to all financial interrelations, including contracts, between owners, operators, or dealers or any of them, or other persons or corporations, in so far as may be necessary to determine (a) the full profits of owners, operators, or dealers; (b) the existence of any combination or relationship which may tend to lessen competition or to create a monopoly in the coal industry and trade.

This bill is practically identical with the Calder Bill, which was introduced in the Sixty-Sixth Congress and which was reviewed in the February issue of the MINING CONGRESS JOURNAL.

IMMIGRATION

H. R. 8525. Introduced by MR. RAKER; referred to the Committee on Immigration and Naturalization. (Amending the act to limit immigration.) The bill amends Section 5 of the Immigration Act and provides that the amendment shall take effect fifteen days after its enactment and shall continue in force until June 30, 1924, and the number of aliens of any nationality who may be admitted during the remaining period of the current fiscal year, from the date when this act becomes effective to June 30, shall be limited in proportion to the number admissible during the fiscal year 1922. Section 6 of the bill is amended to provide that it shall be unlawful for any person, including any transportation company, or the owner, master, agent, or consignee of any vessel to bring to the United States, either from a foreign country or any insular possession of the United States, any alien not admissible under the terms of this act, and if it shall appear to the satisfaction of the Secretary of Labor that any alien, not admissible under the terms of this act, has been so brought, such person or transportation company, or the master, etc., of any vessel, shall pay to the collector of customs of the customs district in which the port of arrival is located the sum of $100 for each alien so brought. And no vessel shall be granted clearance papers pending the determination of the question of the liability to the payment of such fine, or while the fine remains unpaid, and such fine shall not be remitted or refunded: Provided, that clearance may be granted prior to the determination of such question upon the deposit of a sum sufficient to cover such fine.

H. R. 8727. Introduced by MR. JOHNSON; referred to the Committee on Immigration and Naturalization. The bill provides for the guidance and protection, the better economic distribution, and the better adjustment of the foreign-born residents of the United States, to repeal all laws heretofore enacted relating to the naturalization of aliens, and to establish a uniform system for the naturalization of aliens throughout the United States, and to create a Bureau of Citizenship in the Department of Labor, and for other purposes.

OIL

S. Res. 138. Introduced by MR. HARRELD; referred to the Committee on Commerce. The resolution reads as follows: Whereas it has been charged by the independent oil producers of the United States that there is a monopoly controlling the production of crude petroleum, the refining of same, and the marketing of its products, and that this monopoly is manipulating the markets thereof in such a way as to force into bankruptcy the twenty-one thousand independent producers in order that it may buy up their properties and thus further monopolize the industry; and that in order to bring about this condition the monopoly is dumping upon the markets of this country such quantities of Mexican output of crude petroleum which it controls as will break the markets of the independents and in violation of the Antidumping Act; and that a conspiracy exists between persons, companies, etc., to bring about this condition in violation of the laws of this country, etc. In order to relieve this situation, it is resolved that the Federal Trade Commission investigate and report to the Senate its findings of fact on the following questions: (1) Does a monopoly or monopolies exist having for their purpose the acquiring of the pipe lines, producing properties, and refineries, which are connected with the petroleum industry in order to create a monopoly? (2) Does there exist a conspiracy among persons, companies, etc., to acquire control of the producing properties, pipe lines, and refineries of the independent producers of crude petroleum and to control prices of crude petroleum and its products? (3) If such monopoly or conspiracy exists, what persons, companies, etc., are engaged in the effort to create such a monopoly? (4) To what extent have the pipe lines used in the transportation of crude oil and controlling the price of crude petroleum and its products been acquired, owned, held, and controlled by such persons, firms, or corporations as are engaged in the effort to monopolize the industry? (5) Does the importation of crude petroleum and its products from Mexico into the United States affect the production, refining, and marketing of the independent producers of the United States? If so, to what extent? (6) To what extent has the group of oil producers known as the Standard Oil group, the Royal Dutch Shell group, and the Doheny group of oil producers borrowed from the Federal reserve banks of the United States funds with which to purchase oil-producing properties, etc., and to what extent have they made such purchase during the current year of 1921 and to what extent have they accumulated funds from other sources for that purpose? (7) To what extent have the pipe-line companies acquired control of producing properties and of production, giving names of pipe line companies and their holdings? The Federal Trade Commission is directed to report the result of its investigations to the Senate not later than December 15, 1921.

H. R. 8344. Introduced by MR. SINNOTT; referred to the Committee on Public Lands. The bill authorizes the Secretary of the Interior to grant extensions of time under oil and gas permits, and for other purposes. If the Secretary finds that any oil or gas permittee

has been unable, with the exercise of diligence, to begin drilling operations or to drill wells of the depth and within the time prescribed by section 13 of the Act of Congress approved February 25, 1920, he may extend the time for beginning such drilling or completing it, to the amount specified in the act for such time, not exceeding three years, and upon such conditions as he may prescribe. Under Senate 2453 Mr. Myers introduced a bill pertaining to this same subject, which reads identically the same as the one above reviewed.

H. R. 8730. Introduced by MR. BLAND; referred to the Committee on Rivers and Harbors. This bill makes it unlawful to discharge oil or other refuse into navigable waters. It is similar to other bills heretofore introduced on the same subject.

INDIAN RESERVATION

S. 2312. This bill, which was introduced by MR. WALSH and referred to the Committee on Indian Affairs, was reviewed in our September issue. It has been reported from that Committee with an amendment, and the bill now reads as follows: That lands reserved for school and agency purposes and all other unallotted lands on the Fort Peck and Blackfeet Indian Reservations, in the State of Montana, reserved from allotment or other disposition, may be leased for mining purposes under regulations prescribed by the Secretary of the Interior.

ALASKAN AFFAIRS

H. R. 8442. Introduced by MR. CURRY of California; referred to the Committee on Territories. The bill appropriates $4,000,000 to complete the construction of the railroad between Seward and Fairbanks, Alaska. Reported to the House by the Committee on October 14.

LAND OFFICE

S. 71. Introduced by MR. SINNOTT. This bill provides for the consolidation of the offices of register and receiver in district land offices in certain cases. It has been passed by the Senate, August 10; and reported to the House on October 17, by the Committee on Public Lands.

INTERSTATE COMMERCE

H. R. 8689. Introduced by MR. JEFFERIS; referred to the Committee on Interstate and Foreign Commerce. This bill amends paragraph 3 of section 6 of the Interstate Commerce Act by adding the following: Provided further, that from and after the passage of this act, any railroad or railroad carriers of freight for hire, on its own initiative, and upon its own line or lines, between stations thereon, or by joint freight-rate agreements with connecting railroad carriers of freight for hire, to stations upon such connecting carrier line or lines, may promulgate, file, put into effect and charge for the transportation of hay, grain, potatoes, live stock, fruits, vegetables, eggs, milk, cream and other perishable food products, coal, and building materials, a lesser rate or rates than the rate or rates theretofore fixed and determined by the Interstate Commerce Commission for the transportation of such commodities: Provided further, that such rate or rates so initiated shall be effective immediately upon the filing of such promulgated rate or rates with the Interstate Commerce Commission, state railway commission, or other public utility commission, or either of them, having jurisdiction of such rate or rates, and such rate or rates shall not be increased during the period of time stated in such rates so promulgated and filed: and provided further, that the Interstate Commerce Commission shall have no jurisdiction or power to fix and determine a minimum rate on any said commodities.

STABILIZATION OF RATE OF EXCHANGE

H. R. 8404. Introduced by MR. MCFADDEN; referred to the Committee on Banking and Currency. The bill authorizes the President of the United States to extend an invitation to Great Britain and France to send three representatives to meet in conference with three representatives of the United States, to be appointed by the President. The conference is to convene in the District of Columbia not later than three months from the date of issue of invitations and is authorized to conduct a detailed investigation of the international exchange problem and the means which may best be employed for the stabilization of exchange. The bill appropriates the sum of $100,000 for the necessary expense in connection with the conference.

ANNUAL ASSESSMENT

H. R. 4813. Introduced by MR. HAYDEN. This bill changes the period for doing annual assessment work on unpatented mineral claims from the calendar year to the fiscal year beginning July 1 each year. It provides that the period within which the work required to be done annually on all unpatented mineral claims located since May 10, 1872, including such claims in the Territory of Alaska, shall commence at 12 o'clock meridian on the first day of July succeeding the date of location of such claim and that the annual period ending December 31, 1921, shall continue to 12 o'clock meridian July 1, 1922.

On August 24, 1921, this bill became a law and is known as Public Law No. 64.

NEW GAS DETERMINATION SYSTEM

A NEW SYSTEM of determining the presence of oxides of nitrogen, a noxious gas resulting from explosions, has been evolved by the Bureau of Mines and a report prepared on the subject. An accuracy of five or six parts per millions is achieved by this method in determining the presence of extremely small quantities of oxides of nitrogen as nitrate, detection having been accomplished of ten parts in one million parts of air.

This type of analysis and use of the newly discovered operation is important in that it will aid in minimizing the quantities of this injurious gas present in the air as a result of improperly fired shots in metal mines. To determine these small quantities, a method was adapted from the usual procedure for the determination of the oxides of nitrogen in water analysis, applying the de-phenyl sulphonic acid method to give the total oxides of nitrogen as nitrogen peroxide or as nitrates.

NEW USES FOR SLATE WASTE

NUMEROUS new uses for slate waste of the mining and quarrying industries have been discovered through investigations carried on by the Bureau of Mines in co-operation with manufacturers.

Chief among the new methods of utilization will be the initiation of "slate flour" as a competing element in a wide field now monopolized by talc, clays, pulverized marble or limestone, ground barytes, aluminum flake and other materials now being extensively used for fillers. It is stated that, with finer grinding than is now being done, waste slate may prove a satisfactory filler in the making of automobile tires, phonograph records and other products which require an extremely fine-grained filler.

MINERAL WITHDRAWALS.—The Land Office has issued special instructions to local land offices in regard to mineral withdrawals. They are based on a decision of the U. S. Supreme Court on March 28 last in the case of Wyoming v. the U. S. in which the court held that conditions obtaining at the date of the completed school land indemnity selection, with respect to the character of the land, whether known or believed to be mineral, were controlling and that the Land Department was without authority to cancel the selection on the ground that the selected land was subsequently included in a petroleum withdrawal proven to be mineral land.

OIL SHALE BIBLIOGRAPHY

A "Selected bibliography on oil shale" has just been issued by the Bureau of Mines. The bibliography, which is designated as Serial 2277, refers to about 300 articles, papers, reports and treatises bearing on the technology of oil shale, and selected chiefly from the literature of the years 1915–1920.

INCREASED DEVELOPMENT OF WATER POWER PREDICTED

GRADUAL REPLACEMENT of steam power by water power will create, in company with other related conditions, an activity in water power development in the near future that may reasonably be expected to exceed all previous records. This is the statement of Secretary of War Weeks, made in connection with his review of the work of the Federal Power Commission, of which he is chairman.

Up to October 8, 1921, there were filed with the Commission 256 applications involving over 16,000,000 horse-power. The reports of the Census Bureau for 1917 showed an aggregate of only 259 public utility stations in excess of 1,000 horse-power capacity.

Commenting upon the enormous amount of prospective developments represented by applications before the Commission, Secretary Weeks says the country could not, of course, absorb all the power which would be generated if all these applications resulted in completed projects.

He expresses the belief that, however, the greater part of the horse-power involved will be developed, although there will doubtless be many applications for plants that will never be constructed.

SURVEY REVIEWS IRON INDUSTRY

THE iron industry was far more active in 1920 than in 1919, prices were higher, and the volume of business transacted was much greater, but conditions were nevertheless not generally satisfactory, according to a statistical review by the Geological Survey.

The iron ore mined in the United States in 1920 amounted to 67,604,465 gross tons, an increase of 11 percent over that mined in 1919. The shipments from the mines in 1920 were 69,281,341 gross tons, valued at $285,006,327, which show increases of 23 percent in shipments and 44 percent in value. The average value per ton at the mines in 1920 was $4.11, as against $3.50 in 1919. The stocks of iron ore, mainly in Minnesota and Michigan, amounted to 11,378,794 gross tons, as compared with 13,097,500 tons in 1919. These figures include only ore containing less than 5 percent of manganese.

NEW COKING PROCESS

COALS which heretofore have not been thought to possess coking properties may be given additional values as the result of low-temperature process experiments recently made by investigators at the University of Illinois, working in co-operation with the Bureau of Mines. These experiments have developed a method of obtaining a good grade of coke from these coals, despite the fact that present standards would lead to the belief that they would not yield to coking.

Treatment by the methods devised by Prof. S. W. Parr of the University of Illinois resulted in a yield of good coke amounting to approximately 60 percent of the coal employed. The coke is dense and of good texture, and seems adapted to use as a domestic fuel and for metallurgical purposes. In some respects the coke seems superior to anthracite for use in domestic furnaces.

The results of the investigation are of twofold importance, indicating the possibility of coking many coals not generally considered to have coking qualities, and also constituting a factor in the solution of the smoke problem in communities not favorably situated for the obtaining of smokeless fuel.

HEROIZED BY FRIENDS WHO SAY HE STOPPED MINE EXPLOSIONS

THE FIRM CONVICTION that a shriveled, little old man is responsible for the decrease in number of mine explosions pervades the thoughts of the entire population of a small Tennessee town. This man is being heroized by his fellow townsmen who believe that he has saved numberless lives as the result of the birth of his brain—a "patent" to prevent mine catastrophes.

Due to the "inventor's" reticence, it has remained for one of his friends to address "Uncle Sam," asking that a fund of some sort be presented to the old man in payment for the explosion prevention plan which he says was presented to the government one year ago.

"A few years ago," writes this friend of the old man, "Jim told me he could stop the explosions in coal mines and would do so if he was able to get a patent on his plan. I told him to get it. He said he would but found that he was without any money to carry things on.

"Well, there were so many explosions he said he would give it to the Bureau of Mines and I think he did and I don't see any accounts of any more explosions and he is the proudest man you ever saw.

"I believe—and he told me—it was the result of his information to the Bureau of Mines. He has got so he can't hear anything and can't do any work on that account."

The writer then makes it plain that the old man "don't expect anything and ain't asking anything and don't know I'm writing to you," making an appeal that is really eloquent in its sincerity.

The concluding paragraph of the letter carries these words: "If he could go on a farm and make a living where he would not have to hear and get a job to hisself as a result of the money that might be gotten up for him because of the explosions he has saved it would be fine, and so I close with best wishes for him and all the rest."

PETROLEUM MEETING—.The annual meeting of the American Petroleum Institute will be held in Chicago, at the Congress Hotel, December 6, 7, and 8. This announcement made by the Institute's Board of Directors indicates a cancellation of the earlier tentative plans to hold the meeting in Kansas City.

UTAH CHAPTER DISCUSSES MINING PROBLEMS

By A. G. MACKENZIE

THE UTAH METAL MINE Operators' Institute held under the joint auspices of the Utah Chapter, American Mining Congress and the State Industrial Commission October 7th and 8th, was pronounced an unqualified success, both in point of attendance and interest and in the character of the papers presented.

The meeting was called to order by C. E. Allen, Manager of the United States Smelting, Refining and Mining Company who, after a short address, introduced Governor Charles R. Mabey of Utah who assured the mine operators of his earnest desire to assist the industry in every way possible.

W. Mont Ferry, Managing Director of the Silver King Coalition Mines Company, was unanimously elected permanent chairman of the Institute and Byron Spry of Salt Lake City was unanimously elected secretary. Papers were presented as follows:

"A Discussion of the Requirements of Hoist Signaling in Metal Mines," by Leonard Wilson, Consulting Electrical Engineer.

Discussion led by T. P. Billings, O. N. Friendly and W. H. Cole.

"Improved Methods of Stoping Adaptable to Utah Mines."

Sectional Square-set Stopes,—by A. S. Winther, General Superintendent Utah Consolidated Mining Co.;

The Mitchell System,—by J. B. Haffner, Foreman Tintic Standard Mining Co.;

Top Slicing,—by A. P. Mayberry, Former Superintendent Centennial Eureka Mine;

Discussion led by Joseph Hyland, R. E. Phelan and J. A. Norden.

"Field for the Storage Battery Locomotive in the Mines of this State,"—by E A. Hamilton, Superintendent U. S. Mines.

Discussion led by L. R. Dobbs and H. T. Plumb.

"Efforts of the American Mining Congress in Standardizing Mining Machinery and Methods,"—by H. C. Goodrich, Chief Engineer, Utah Copper Company.

Discussion led by E. H. Burdick.

"Our Experience in Overcoming Hot Mine Gases, Including Guniting Drifts,"—by A. J. May, Superintendent, Tintic Standard Mining Company.

Discussion led by Lewis Merriman and A. C. Nebeker.

"The Present Status of the Wet Stoping Drill,"—by H. G. Snyder, Metal Mine Inspector.

Discussion led by William Owens and H. M. Hartmann.

"Should the Metal Mine Operators of Utah Conduct Future Meetings of this Character,"—by L. S. Cates, Assistant General Manager, Utah Copper Company.

Discussion led by E. F. Birch, A. G. Mackenzie, D. D. Muir and J. Fred Johnson.



PROPOSED CONSOLIDATION OF ROADS OUTLINED IN PRELIMINARY REPORT

By C. H. Farrell

THE TRANSPORTATION ACT provides that the Interstate Commerce Commission shall prepare and adopt a plan for the consolidation of the railway properties of the continental United States into a limited number of systems, bearing in mind the preservation of competition and existing routes and channels of trade and commerce. The law also requires the Commission to give due consideration to the cost of transportation, to the necessity of retaining uniform rates, and to the desirability of providing traffic which will net substantially the same rate of return upon the value of the respective properties.

In accordance with this provision of the law the Commission assigned Professor Wm. Z. Ripley, of Harvard University, to prepare a report, and the Commission has taken this report and drawn up from it a tentative plan upon which it hopes to establish a record through a series of hearings and investigations which will make possible the result suggested by the law. The plan which the Commission proposes will divide all the carriers in the United States into nineteen principal systems, which will be known as follows:

System No. 1—New York Central.
System No. 2—Pennsylvania.
System No. 3—Baltimore & Ohio.
System No. 4—Erie.
System No. 5—Nickel Plate–Lehigh Valley.
System No. 6—Pere Marquette.
System No. 7—New England.
System No. 8—Chesapeake & Ohio.
System No. 9—Norfolk & Western.
System No. 10—Southern.
System No. 11—Atlantic Coast Line–Louisville & Nashville.
System No. 12—Illinois Central–Seaboard.
System No. 13—Union Pacific–North Western.
System No. 14—Burlington–Northern Pacific.
System No. 15—Milwaukee–Great Northern.
System No. 16—Santa Fe.
System No. 17—Southern Pacific–Rock Island.
System No. 18—Frisco–Katy Cotton Belt.
System No. 19—Chicago–Missouri Pacific.

This report is intended only as a basis for discussion and it is understood that the Commission will assign a series of hearings in the near future at which everyone concerned can criticise the present plan and make such suggestions as he desires, the hope being that in the end a working plan can be adopted. The report as now made up includes principally the Class I carriers. Those controlled by Canadian roads are not included because they form parts of systems in competition with the new systems suggested. Neither are the majority of the small industrial, terminal and interurban electric companies given a position, but it is understood that they will be included after they have been discussed in the various hearings. Water carriers are also excluded for the present and are considered as tentatively in the systems in which the rail carrier controlling them has been included.

THE MINERS' CONTRIBUTION.—Figures indicating the great extent to which products of mines contribute to the running of our railroads are again available, this time for the second quarter of 1921. The Interstate Commerce Commission shows that products of mines are responsible for 2,525,313 carloads of revenue freight originated on the lines of the various carriers out of a total of 6,298,698 cars. Translated into tons the figures are 124,145,374 out of a total of 222,575,624. In other words, products of mines furnished about 40 percent of the total number of cars originated by the carriers and about 56 percent of the total number of tons originated by the carriers. Under the classification of products of mines the Commission, however, does not include refined petroleum and products, pig and bloom iron, rails and fastenings, bar and sheet iron, structural iron and iron pipe, casting machinery and boilers, and other metals, pig, bar and sheet, which would increase the number of cars shown above by 445,216 and the number of tons by 13,085,489, and would increase the percentage of the whole number of cars originated by mines to about 47 percent and the whole number of tons originated by mines to about 62 percent. Taking the total number of tons of revenue freight carried we find products of mines are credited with about 52 percent, while the tonnage of the articles named above which are not included in products of mines added to the tonnage that is included in products of mines gives the mining industry credit for about 59 percent of all the tons of revenue freight carried by the railroads.

REDUCTIONS IN RATES.—The Association of Railway Executives, in denying that it had refused any proposition of the public group of the Labor Board, called attention to the rate reductions which have been made since the general increase in rates effective about September 1, 1920. Below is given a summary of the general reductions which the Executives claim:

Cargo coal from points in Ohio, Western Pennsylvania and West Virginia, to Lake Erie ports with an estimated loss in revenue of $4,116,000;

Grain and grain products, ranging from $1.40 to $2.10 per ton, and including new export rates from Chicago to the Atlantic Seaboard which are actually lower than the rates in effect prior to the general increase;

Road making material in New England, New Jersey, Pennsylvania, West Virginia, Indiana, Maryland and Delaware, which involves reduced revenue on many millions of tons;

Export iron and steel articles, averaging $1.66 per ton;

Imported iron ore, averaging 58.8 cents per ton;

Ex-lake ore, amounting to 36.5 cents per ton.

The Pennsylvania Railroad East of Pittsburg is said to have made 3,871,286 rate re-

ductions, affecting 2,988 origins and 34,561 destinations. In Central Freight Association territory rates affecting 662 commodities have been reduced, covering about 4,500 points of origin and 10,000 destinations. The Executives insist that a similar situation has prevailed throughout the country and that some railroads have made reductions in rates which amount to more than the reductions in wages so far effected. On many other roads the reductions in wages made it possible for the carriers to operate without a deficit, but left them no net return. The Executives conclude with a statement that any subsequent reductions in wages will be passed on to the shipper if the Interstate Commerce Commission approves.

WAGES.—In connection with the strike news that is getting so much prominence at the present writing some figures recently made public by the railroads are of interest. The statistics of the Interstate Commerce Commission during the second quarter of this year show that the average annual compensation per railroad employe was 126 percent greater than it was in 1913, while tabulations of the National Industrial Conference Board show that the cost of living in June, the last month of this quarter, was 61.9 percent greater than in 1913. During the year 1920 the average hourly earnings per railroad employe was 67.7 cents, or 172 percent more than in 1913, while the average for the first quarter in 1921 was 72.2 cents, or 190 percent greater than in 1913, and for the second quarter 71 cents, or 185 percent greater. The average rate of wages per hour in 1920 in other than railroad employment was only 99 percent greater than in 1913. During the first months of 1921 the total wage bill of the railroads was $1,457,010,151, or 54.44 percent of their gross operating revenues. The carriers estimate that their wage bill in 1921 for the full year will be $2,914,000,000, or $1,175,000,000 more than the total wages paid in 1917.

EARNINGS.—During the month of August the carriers had a net operating income of $90,200,000 compared with a deficit in August of last year of $158,539,000. The operating revenues decreased 8.9 percent but there was also a reduction in operating expenses of 43.9 percent, and this large saving in expenses coupled with decreased expenditures for maintenance are given as the reasons for the largest operating income yet shown this year. The Executives explain that only $182,000,000 was spent for maintenance in August of this year, which is a reduction of 45.3 percent compared with August last year. Had a similar amount been spent this August there would have been an operating deficit of $60,800,000. There is, however, no explanation of whether August of last year was an extraordinary month from the standpoint of maintenance. Taking the earnings by districts and comparing with August last year we find that the Eastern district showed a reduction of 11.7 percent in operating revenues, a reduction of 44.1 percent in operating expenses, and a net operating income of $32,244,000 compared with a deficit last year of $78,398,000. In the Southern district operating revenues decreased 14.1 percent, operating expenses 35.6 percent, while there was a net operating income of $7,461,000 compared with a deficit last year of $13,175,000. In the western district operating revenues decreased 3.7 percent, operating expenses 46.6 percent, leaving a net operating income of $50,495,000 compared with last year's deficit of $66,966,000. The operating income for the first eight months of this year on all roads has been at an annual rate of return of 2.6 percent upon the money invested in the railroad properties as fixed by the Commission.

CAR LOADING.—Beginning with the week ended September 3rd, which was an increase over the previous week, we find that the carriers are steadily gaining in the number of cars loaded with revenue freight, each week during the month of September and up to October 1st showing an increase except the week ended September 10th, which showed a decrease on account of the observance of Labor Day. However, this week would undoubtedly have shown an increase over the previous one because the average daily loadings during the six working days showed an increased tonnage. The following week, which ended on September 17th, showed a loading of 853,762 cars, which was the largest number loaded during any one week since December of last year. The following week, which ended on September 24th, showed an increase over the previous record week of 19,543 cars and the week ended on October 1st showed a still further increase of 27,773 cars, all of which indicates that tonnage on the roads is steadily gaining in spite of the business depression and the high scale of rates, or else that business is gradually picking up and that the rate reductions already in effect are beginning to result in increased tonnage.

CAR SUPPLY.—The number of freight cars idle because of business conditions on October 1st totaled 375,370 as compared with 414,698 on September 23rd. This was a reduction of 39,328 under the previous week and followed reductions under each week during the month of September. Of the total number of cars idle on October 1st 172,420 were in good condition and ready for service, while 202,950 were in need of repairs. Surplus box cars in good order totaled 42,093, and there were 98,048 idle coal cars in good condition ready for service. On October 1st there was 15.8 percent of all freight cars in need of repairs, compared with 16.3 percent on September 15th. Ordinarily about 7 percent of the total number of cars is idle, and by using this figure we reach the conclusion that 202,950 cars are idle and out of repair more than during normal conditions.

INDUSTRIAL NOTES

E. E. Aldous has been appointed as representative in St. Paul, Minneapolis - Duluth territory, with headquarters at St. Paul, by the American Steel & Wire Company of Chicago. Mr Aldous has been connected with the company for twenty years in different positions and, therefore, is well posted in their various lines and eminently qualified to represent them and take care of their interests.

The Jeffrey Manufacturing Company of Columbus, Ohio, in order to render greater service to users of their mining machinery in and around Fairmont, West Virginia, have established a service station in the Fairmont Hotel Building, where a complete line of standard parts for their mining machines and locomotives will be carried in stock for the convenience of customers in ordering supplies.

Homer W. Scott is now in charge of the Cleveland office of the Jeffrey Manufacturing Company, located at 437 Leader News Building, and C. R. Heller is now in charge of the Buffalo office located at 1108 Marine Trust Building. Both of these gentlemen have had a thorough training in the Sales and Engineering Departments of the Jeffrey Company.

Through an error the cuts in the October advertisement of the W. M. Lalor Company were run up-side down. Corrected ad appears in this issue.

The Automatic Reclosing Circuit Breaker Company of Columbus, Ohio, has developed and placed on the market what is designated as the Type "SS" Automatic D. C. Motor Starter. This starter is designed for 250 or 500 volt service in capacities of 3, 5, 7½, and 10 H. P. It is of the counter e.m.f. type with one step of resistance which is automatically cut out when the motor comes up to speed. This resistance is made of nickel and chromium alloy wire, the very highest grade material available for withstanding corrosion, and is of such value that it limits the starting current to the full load current of the motor and of sufficient capacity to carry this full load current indefinitely.

Leonard W. Kearns, one of the prominent men in the leather belting industry, has affiliated himself with the sales organization of the Chicago Belting Company of Chicago. As a salesman he has had marked success and his friends will be interested in knowing that his new activities will cover a broader field than ever before.

Roberts and Schaefer Company of Chicago, Illinois, have just issued a new Coal Mining Plant Book, No. 45. It is a publication of 63 pages 8" x 11", and is fully illustrated with diagrammatic drawings of the mechanical equipment and photographs of the machinery and completed structures which they have designed and built.

Mr. Fritz R. Lindh, formerly chief engineer of the Graton and Knight Mfg. Company, has joined the sales organization of the Chicago Belting Company.



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ASSAYERS
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Indiana Laboratories Co., Hammond, Ind.
Ledoux & Co., Inc., 99 John St., New York.
Pennsylvania Smelting Co., Pittsburgh, Pa.
Union Assay Office, Inc., Box 1446, Salt Lake City, Utah.

AUTOMATIC CAR CAGERS
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

AUTOMATIC COAL SKIP
Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

AUTOMATIC (Mine Doors, Truck and Electric Switches)
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BALL MILLS
Mine Equipment & Supply Co., Denver, Colo.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

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BELTING (Conveyor, Elevator, Transmission)
Jeffery Mfg. Co., 958 N. Fourth Avenue, Columbus, Ohio.

BELTING, SILENT CHAIN
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BIT SHARPENERS
Denver Rock Drill Mfg. Co., Denver, Colo.

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Atlas Powder Company, Wilmington, Del.
du Pont Powder Co., The E. I., Wilmington, Del.
Giant Powder Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
National Fuse & Powder Co., Denver, Colo.

BLOWERS
General Electric Co., Schenectady, N. Y.

BOILERS
Allis-Chalmers Mfg. Co., Milwaukee, Wis. (feed pump).
Mine Equipment & Supply Co., Denver, Colo.

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J. R. Fleming & Son Co., Inc., Scranton, Penna.

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Mikesell Brothers Co., 156 N. La Salle Street, Chicago, Ill.

BREAKERS (Construction and Machinery)
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Vulcan Iron Works, Wilkes-Barre, Pa.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.
Wilmot Engineering Co., Hazleton, Pa.

BRIQUETTING MACH.
Jeffrey Mfg. Co., Columbus, Ohio.

BUCKETS (Elevator)
Hendrick Manufacturing Company, Carbondale, Penna.
Jeffrey Mfg. Co., Columbus, Ohio.
Stephens-Adamson Mfg. Co., Aurora, Ill.

CABLES (Connectors and Guides)
American Mine Door Co., Canton, Ohio.

CABLEWAYS
Jeffrey Mfg. Co., Columbus, Ohio.
Lidgerwood Mfg. Co., 96 Liberty St., New York City.

CAGES
Car-Dumper & Equipment Co., Chicago, Ill.
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.
Holmes & Bros., Robert, Inc., Danville, Ill.
Lidgerwood Mfg. Co., 96 Liberty St., New York City.

CAGE (Safety Appliances)
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

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CAR DUMPS
Car-Dumper & Equipment Co., Chicago, Ill.

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United Iron Works Co., Kansas City, Mo.
Watt Mining Car Wheel Co., Barnesville, Ohio.

CAR-HAULS
Car-Dumper & Equipment Co., Chicago, Ill.

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The Lunkenheimer Co., Cincinnati, Ohio.
Mine Equipment & Supply Co., Denver, Colo.

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Jeffrey Mfg. Co., Columbus, Ohio.
Morse Chain Co., Ithaca, N. Y.
Stephens-Adamson Mfg. Co., Aurora, Ill.

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The Barrett Company, 90 West St., New York City.
Roessler & Hasslacher Chemical Co., 709-717 Sixth Avenue, New York.

CHEMISTS
Walter E. Burlingame, 1736 Lawrence St., Denver, Colo.
Hunt, Robt., & Co., Insurance Exchange, Chicago, Ill.
Indiana Laboratories Co., Hammond, Ind.
Ledoux & Co., A. R., Inc., 99 John St., New York City.
Union Assay Office, Inc., Box 1446, Salt Lake City, Utah.

CIRCUIT BREAKERS
Automatic Reclosing Circuit Breaker Co., The, Columbus, O.
General Electric Co., Schenectady, N. Y.

CLAMPS (Trolley)
Ohio Brass Co., Mansfield, Ohio.

CLUTCHES
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

COAL COMPANIES
Clinchfield Coal Corp., Dante, Va.
Lehigh Coal & Navigation Co., Philadelphia, Pa.
Stonega Coal & Coke Co., Philadelphia, Pa.
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COAL CRUSHERS
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.
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Goodman Mfg. Co., Chicago, Ill.
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Stephens-Adamson Mfg. Co., Aurora, Ill.
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Mine Equipment & Supply Co., Denver, Colo.
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Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.
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Goodman Manufacturing Co., Halsted St. and 48th Place, Chicago, Ill.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

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Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
Stephens-Adamson Mfg. Co., Aurora, Ill.

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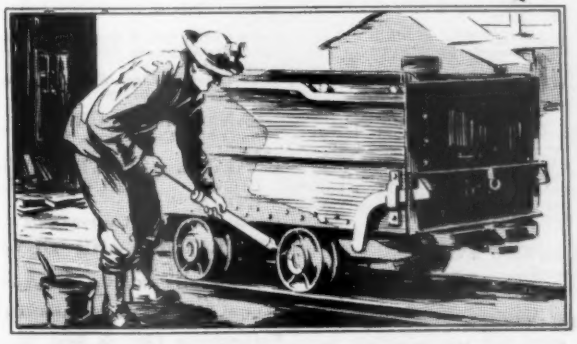
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United Iron Works Co., Kansas City, Mo.

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Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

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Denver Rock Drill Mfg. Co., Denver, Colo.

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DRIFTERS, DRILL
Denver Rock Drill Mfg. Co., Denver, Colo.
Ingersoll-Rand Co., New York City.

DRILLS (Blast Hole)
Denver Rock Drill Mfg. Co., Denver, Colo.
Ingersoll-Rand Co., New York City.

DRILLS, CORE
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du Pont Powder Co., The E. I. Wilmington, Del.
Giant Powder Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
National Fuse & Powder Co., Denver, Colo

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General Electric Co., Schenectady, N. Y.
Goodman Mfg. Co., Forty-eighth Place and Halsted St., Chicago, Ill.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

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General Electric Co., Schenectady, N. Y.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

ELECTRIC HOISTING MACHINERY
Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.

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Goodman Mfg. Co., Forty-eighth Place and Halsted St., Chicago, Ill.
Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
Ohio Brass Co., Mansfield, Ohio.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

ELECTRIC MINE SUPPLIES
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ELECTRICAL SUPPLIES
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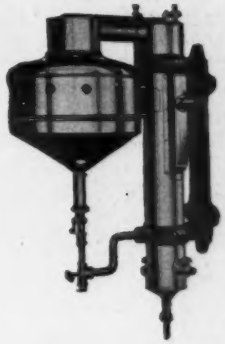
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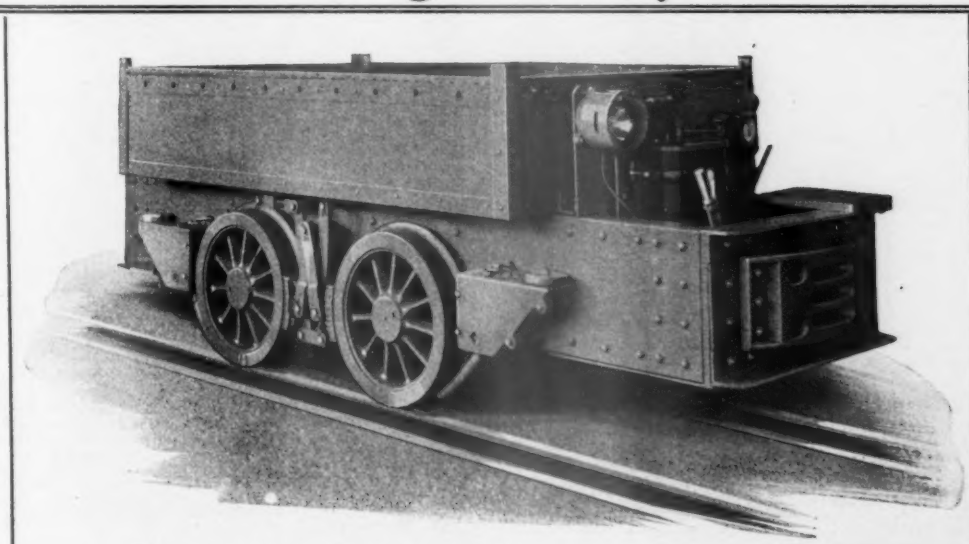
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Goodman Mfg. Co., Chicago, Ill.
Ironton Engine Co., Ironton, Ohio.

LOCOMOTIVES, STEAM
Vulcan Iron Works, Wilkes-Barre, Pa.

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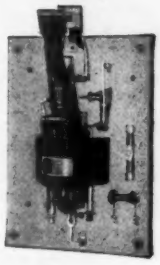
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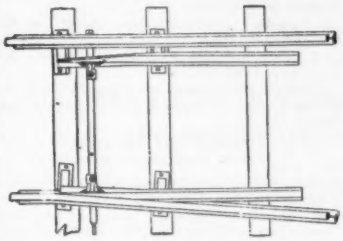
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(Continued on page 32)

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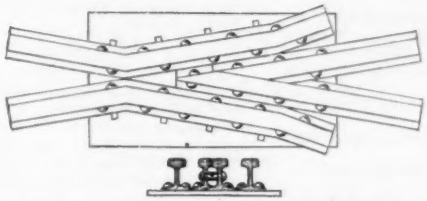


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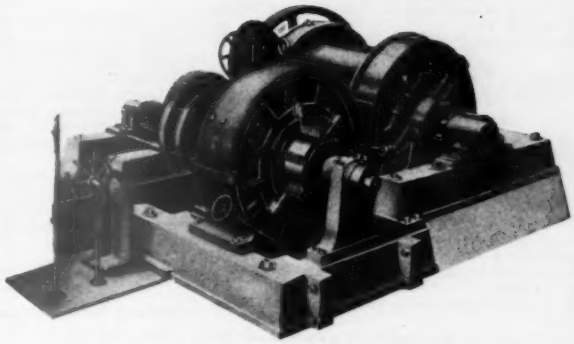
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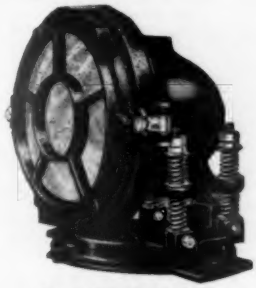
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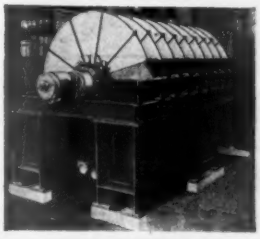
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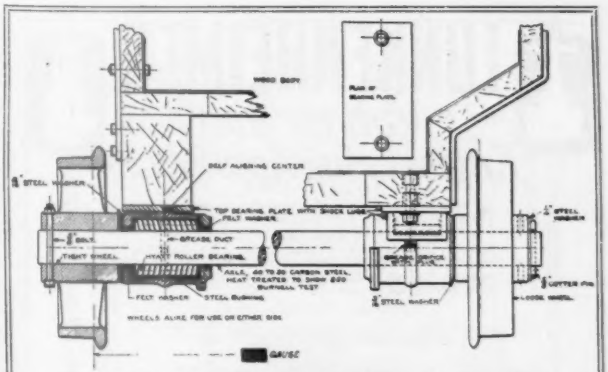
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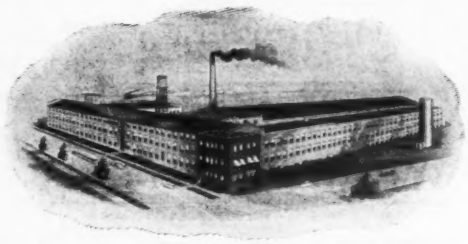
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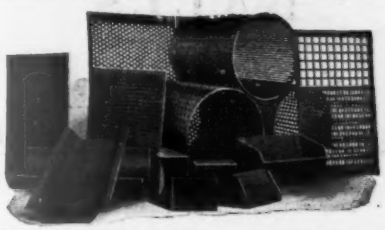
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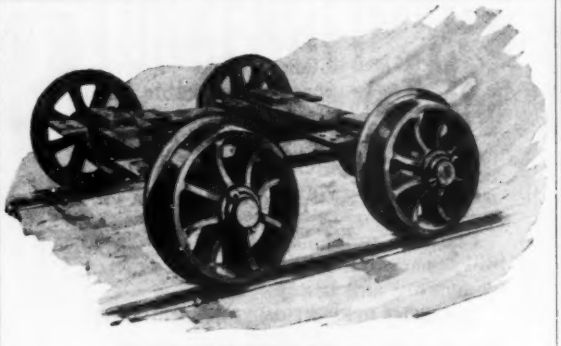
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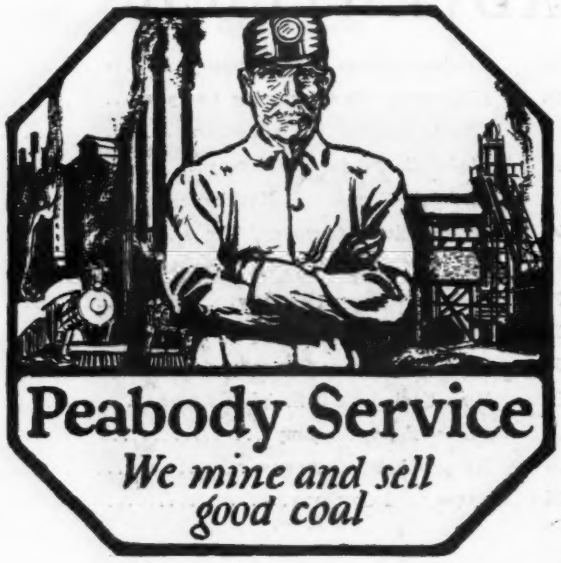
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INDEX TO ADVERTISERS

Allis Chalmers Mfg. Company 14
Ameling Prospecting Company, H. R. 56
American Cyanamid Company 4
American Mine Door Company 12
American Steel & Wire Company 28
American Zinc Lead & Smelting Company 20
Anaconda Copper Mining Company 16
Atlas Powder Company 34
Automatic Reclosing Circuit Breaker Company 51
Barrett Company, The 53
Boyle, Jr., John 56
Buckeye Blower Company 8
Burlingame, Walter E. 56
Car Dumper & Equipment Company 56
Cement Gun Company, Inc. 36
Central Frog & Switch Company 53
Channon Mfg. Company, James H. 32
Chicago Mining Sheave & Roller Company 10
Chicago Perforating Company 56
Clinchfield Coal Corporation 59
Connellsville Mfg. & Mine Supply Company 53
Denver Rock Drill Mfg. Company 3
Dravo Doyle Company 40
DuPont de Nemours & Company, E. I. 13
Eagle Picher Lead Company 35
Federal Electric Company 25
Fleming & Sons Company, J. R. 55
Flexible Steel Lacing Company 45
General Electric Company 23
General Naval Stores Company 58
Goodman Mfg. Company 6
Hendrick Manufacturing Company 57
Hercules Powder Company 37
Hockensmith Wheel & Mine Car Company 29
Hoffman Brothers 56
Holmes & Brothers, Robert 17
Hudson Coal Company 39
Hunt & Company, Robert W. 57
Indiana Laboratories Company 58
Ironton Engine Company 8
Irvington Smelting & Refining Works 57
Jacobsen & Schraeder, Inc. ..... Cover
Jeffrey Manufacturing Company, The ..... Cover
Jones Foundry & Machine Company, W. A. 30
Kenova Mine Car Company 11
Lalor Company, W. M. 47
Ledoux & Company 58
Lehigh Coal & Navigation Company 10
Leschen & Sons Rope Company, A. 16
Lidgerwood Manufacturing Company 33
Lincoln Steel & Forge Company 58
Linde Air Products Company 43
Litchfield Foundry & Machine Company 30
Lunkenheimer Company, The 56
Mancha Storage Battery Locomotive Company 22
Metals Recovery Company 49
Mexican Petroleum Company 38
Mikesell Brothers Company 56
Mine Equipment & Supply Company 58
Morse Chain Company 15
Myers-Whaley Company 31
Nason Coal Company 51
National Fuse & Powder Company 55
New York Engineering Company 28
Nicholson & Company, W. H. 58
Ohio Brass Company 53
Peabody Coal Company 64
Pennsylvania Smelting Company 57
Phelps Dodge Corporation 58
Railway and Mine Supply Company ..... Cover
Randolph, H. F. 58
Roberts & Schaefer Company 51
Roebling's Sons Company, John A. 57
Roessler & Hasslacher Chemical Company 18
Sanford Day Iron Works 24
Scaife & Sons Company, William B. 56
Shirkie Coal Company 61
Standard Oil Company 45
Stephens-Adamson Mfg. Company 42
Stimpson Equipment Company 41
Stonega Coke & Coal Company 59
Stonehouse Steel Sign Company 57
Streeter Amet Weighing & Recording Company 19
Thorne, Neale & Company 60
Timken Roller Bearing Company 7
Union Assay Office 58
Union Sulphur Company 21
United Filters Corporation 55
United Iron Works 55
United Metals Selling Company 20
United Verde Extension Mfg. Company 27
Vulcan Iron Works 26
Watt Mining Car Wheel Company 14
Weinman Pump Mfg. Company 10
Westinghouse Electric & Mfg. Company 9
West Virginia Rail Company 57
Whitcomb Company, George D. 47
Wholesale Coal Company 59
Wilmot Engineering Company 57



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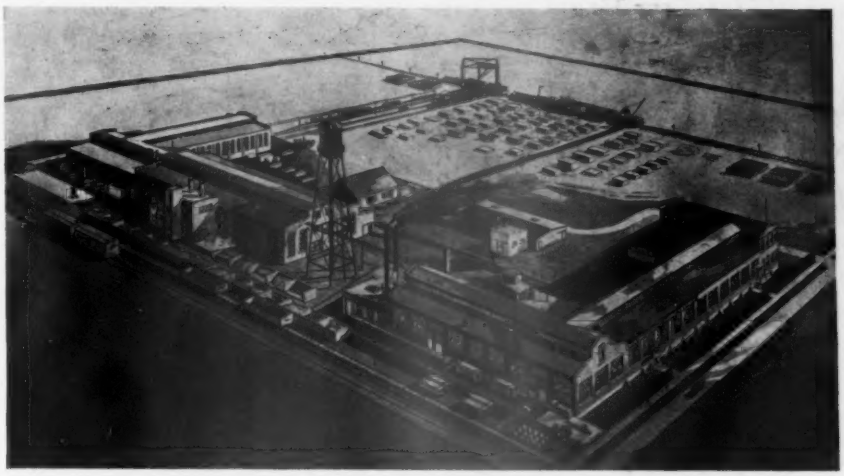
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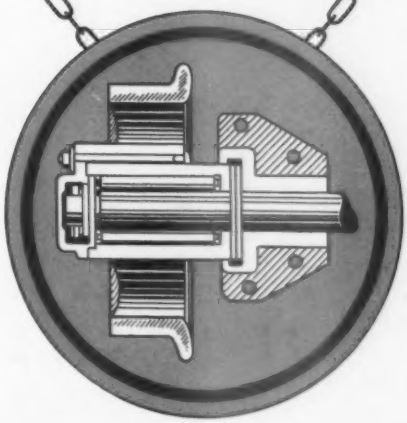
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